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MASTER IN COMPUTER SCIENCE

Methodological roadmap for E-business models design development of a web-supported guideline and practical demonstration

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FACULTY OF COMPUTER SCIENCE

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Methodological Roadmap for E-Business Models Design

Development of a Web-Supported Guideline
and Practical Demonstration

Hubert de Cartier d'Yves - Sébastien François-Lavet



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Abstract

In the most basic sense, a business model is a description of the way how an organization works to be sustainable. In this sense, business models are everywhere. Although «Business models» are widely used in different contexts and a lot of papers exist about this term, people use it in several different ways and to mention different methods or concepts. Even if these models could be really useful to the managers in order to understand, analyze, and share information about the organizations, they often consider them as a concept not precise enough because of a lot of papers and different ideas written on the subject.

From this established fact, we built a tool to make their use more practical and easier to understand. In this thesis, we defined a precise methodology, based on existing state of the art elements in the area of business modeling. We then implemented software support for this methodology. It was finally illustrated and tested on a case study.

Keywords : e-Business models, practical roadmap, business modeling

Résumé

Au sens premier du terme, un modèle d'affaires est une description de la manière dont une organisation fonctionne pour être rentable. Dans ce sens, les modèles d'affaires sont partout. Bien que les «Business models» sont largement utilisés dans différents contextes et que beaucoup d'articles traitent du sujet, ce terme est utilisé de différentes manières et pour mentionner des méthodes ou concepts différents. Même si ces modèles pourraient être très utiles aux managers pour comprendre, analyser et partager de l'information à propos des organisations, ils les considèrent souvent comme un concept peu pratique du fait du grand nombre d'articles et les différentes idées écrites sur le sujet.

A partir de ce constat, nous avons construit un outil pour rendre leur utilisation plus pratique et facile à comprendre. Dans ce mémoire, nous avons donc élaboré une méthodologie précise basé sur le state of the art dans le domaine de la modélisation d'entreprises. Nous avons ensuite implémenté un support logiciel pour cette méthodologie. On l'a enfin testé et illustré sur une étude de cas.

Mots-clés : Modèle d'affaires, feuille de route pratique, modélisation d'entreprises

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Chapter 1

Introduction

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Context & Motivation

Nowadays, business models play a crucial role in many organizations. A lot of papers exist about « business models » but this term remains a *buzzword* : managers, academics and journalists use it in different ways and there is almost one definition for each person who wrote a paper about it.

In literature, Jaap Gordijn, Alexander Osterwalder and Yves Pigneur defined the notion of «business model» as follows : (1) as a taxonomy (such as e-shops, malls, auctions) and (2) as a conceptual model of the way we do business. Taxonomies enumerate a finite number of business model types, while a conceptualization of «business model» describes a meta-model or a reference model for a specific industry, allowing to describe an infinite number of business models.[7]

In our work, we consider a «business model» as defined by Dubosson-Torbay, Osterwalder and Pigneur[6] : «A business model is nothing else that an architecture of a firm and its network of partners for creating, marketing and delivering value and relationships capital to one or several segments of customers in order to generate profitable and sustainable revenue streams». Gordijn, Ackermans and van Vliet complemented this definition as follows : «the main goal of a business model is to answer the question: who is offering what to whom and expects what in return. Therefore, the central notion in any business model should be the concept of value»[10]

The main part of the research about business models concerns actually the «e-business models» and so our analysis deals mainly with these kind of business models. However, we think that most aspects of our thesis could also be applied to traditional organizations.

In our analysis, we discovered that a lot of different models called «business models» are proposed by academics to cope with the analysis of companies. Models, either more graphical, either more textual, have their advantages and disadvantages. Most of them cover some aspects of the business models. Therefore, this thesis proposes to use a combination of several of these approaches. After the analysis of the State of the Art, we only used a few relevant models among all possibles one. In the future, there will be other (and perhaps better) tools but we

tried to choose the best models at the moment.

The literature[3], [18] identifies three main reasons for creating a business model:

- A prerequisite to create or improve the way how an organization works is to understand its context. It means to understand all aspects which exists around the organization and that implies it to adapt to them. It covers a lot of aspects of the organization from the suppliers to the customers among a lot of other things to analyze.
- The second idea is that when the user analyses the context and the internal aspects of the organization, he also increases its own knowledge about the organization and prepare then himself to take right decisions. There couldn't be any future or previsions without a strong analysis of the present of the organization (or its environment in the case of a new one).
- Development of an e-business idea often leads to misinterpretation and to a lack of common understanding due to involvement of many enterprises, and a broad range of stakeholders representing these enterprises. The third idea of the business model is to share information. As Osterwalder explained in the conclusion of his thesis, «Above all, the ability to create a transparent big picture of a business and to externalize the relationships and dependencies of business elements seem to interest executives and consultants. Furthermore, business models were perceived as a tool to create a commonly understood language to improve communication and understanding of the fundamental questions of a business». Usually, business models are mainly used by CxO (Chief Executive Officer, Chief Financial Officer, Chief Information Officer, ...) and business analysts. However the information studied has to be shared with the whole organization in order to decide and achieve goals in common with as few misunderstandings as possible.

As a report of the OECD about *ICT, E-Business and SMEs*[17] noticed «SMEs may have more difficulties, compared to larger firms, in finding an e-business case applicable to them because of the lack of the time, information and knowledge. They may wish to retain their current business model and avoid the risks associated with new investments and new business models». As larger companies have much more resources and can then use them to develop their business model without special help, this thesis will focus on the SMEs. A practical tool to design their business model could help them to identify the risks and possibilities to improve their organization.

In the thesis, we mean by user the business modeller who wants to model his organization. He has knowledge and experience about the organization and can identify its main elements in order to analyze it deeply.

Master's thesis purpose

In parallel with our activity of students, we created an e-business company which sells on the Internet craft products through the website <http://www.articadeau.com>. Before to launch it, we wanted to analyze the situation of the sector where we would enter. We did it rapidly and without any structure. After this experience of young entrepreneurs in the e-business, we can say that it would have been interesting for us to analyze more deeply the environment, the processes or the economical flows of our future organization using «business models». It

would have helped us to be aware of all opportunities and threats around us.

The objective of this is to propose a thesis which would make the creation of business models easier and more practical. We wanted to reach users who could really use them to improve how they work. The way to present it should be practical, easy to understand and useful.

The goal of this thesis is to define a methodology / practical roadmap by combining elements from the state of the art, into a coherent whole and then to develop a prototype software environment to support the business modeller in its application of the methodology. We tested the methodology and the software on a real case study in order to evaluate their value and quality.

Overview

The thesis is divided in four parts as follows.

Part I *State of the Art* : In this part, we study the State of the Art about business models and other interesting methods for the practical roadmap. We begin to analyze the methods about the Strategical Level of an organization with the SWOT analysis. We add information with the Value Chain for the internal aspects of the SWOT analysis and with the 5 Forces model for the external aspects of the SWOT analysis. We analyze also the goal models thanks to I* and GRL. Further, we analyze the business level with different models for all aspects of the business model. Firstly, we present taxonomies of business models with more details for the Atomic Business Models and Business Schematics of P. Weill and M. Vitale. Secondly, we study the e-Business Model Ontology (eBMO) of A. Osterwalder. Lastly, we cover economical aspects with e³-Value of J. Gordijn.

Part II *Proposal of a methodology for business models creation* : The second part describes precisely how we want to implement the different theoretical elements that we mentioned in the State of the Art on the website. We present the ways that we suggest in the tool for the users. It is mainly based on two distinctions : AS IS and TO BE analysis with transitional goals between the two situations and a Full or Light analysis to have a deep or overviewed situation of the business model.

Part III *Presentation of the tool* : We present in this part the website (<http://www.business-models.info>) which we developed to facilitate the creation of a business model. We cover technical, graphical and organizational aspects of the website.

Part IV *Case study* : To test the roadmap and the website that we developed, we did a case study. We present the company ArtiCadeau in this part and the results of the application of the methodology with the help of the tool. We also present some conclusions on this application/case study.

Finally, we conclude the thesis and propose further improvements. Appendices contain the specifications of the website and the case study of ArtiCadeau.

Part I

State of the Art

Chapter 2

Introduction

In the state of the art, we based the organization of this chapter on the «Hierarchical Levels of Strategy» from QuickMBA[40]. We divided the analysis in *Strategical level* and *Business level*. The first one is at the top of the second one since it takes in account longer-term objectives.

On the one hand, the Strategical level is global at the whole organization and analyze the corporate values, cultures and long-term goals. It has to identify the overall goals of the organization and seeks to develop synergies by sharing and coordinating staff and other resources across business units. It has to ensure that they are successful over the long-term.

On the other hand, the Business level (sometimes called Tactical level) deals with mid-term goals and its scope is the different business units of an organization. Following Porter, «Its issues are about developing and sustaining a competitive advantage for the goods and services that are produced »[25]. We do not analyze the third level which is an operational one.

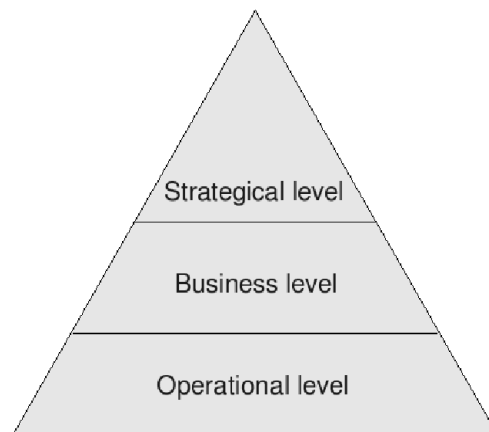


Figure 2.1: Organization of the State of the Art

We organized the state of the art in Strategical and Business level because it enables to separate these two different levels which have different needs and goals. They also use different methods that we analyze in the next chapters of this part.

To analyze the strategical level, we will firstly use the SWOT analysis which is an acronym for Strengths, Weaknesses, Opportunities and Threats. We chose it because it is a well-known method to analyze strategical goals of an organization. A lot of managers did already a SWOT

analysis and know its goals. We use the Value Chain and the 5 forces model of Michael Porter to illustrate and precise the SWOT analysis. It permits to go from a lower level or more concrete level to the final and higher level objective : the SWOT analysis of the company. Next, we analyze the strategic goals of the actors around the organization via the i*/GRL notation (goal modeling) developed by Eric Yu[34].

To analyze the business level, we start with taxonomies of business models using mainly the one of Weill & Vitale and their Atomic Business Models[32]. We also present the taxonomies of Timmers[29] and Rappa[41]. After that, we present the e-Business Model Ontology(eBMO) proposed by Osterwalder [18] which structures the main elements of business models. Lastly, we explain in details the e³-value ontology by Gordijn[9] which enables mainly to analyze the economical flows between the organization and its stakeholders.

Chapter 3

Strategical level

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As defined by Fred David, «Strategic management is the art and science of formulating, implementing and evaluating cross-functional decisions that will enable an organization to achieve its objectives.»[5]

3.1 SWOT

The SWOT strategic planning tool can be used to assess a company, a business idea, an opportunity to make an acquisition, a potential partnership, etc. Its goal is to study the internal and external aspects of a project that are favorable or unfavorable to achieve some objectives.

The Strengths and Weaknesses are the internal aspects. The Opportunities and Threats are the external ones. This analysis is useful in the first step of the analysis to evaluate what exists about the company and its environment.

Here is an explanation of the four terms which constitute the S.W.O.T. analysis [42] :

- **Strengths:** attributes of the organization that are helpful to achieve the objectives.
- **Weaknesses:** attributes of the organization that are harmful to achieve the objectives.
- **Opportunities:** external conditions that are helpful to achieve the objectives.
- **Threats:** external conditions that are harmful to achieve the objectives.

Identification of SWOT's is essential because subsequent steps in the process of planning are derived from this. Next, the executives have to determine if the objectives are attainable, given the SWOT. If the analysis shows that the objectives are realistic, they have to determine what to do in order to use and exploit the strengths and opportunities while stopping the weaknesses and defend against each threat. By mixing idea generation with evaluation, it is likely to reduce the range of strategies that are considered.

To get some useful results, the S.W.O.T. analysis should be used deeply and with care. A lot of people used this tool without thinking enough. In this case, the tool is mainly useless because it does not provide any improvements or new ideas. In other words, if the analysis does not start with defining a desired end state or objective, it runs the risk of being useless.

Michael Porter developed some interesting methods to analyze deeply the internal and external aspects of a business. He proposes the *Value Chain model* to describe some of the internal aspects of the business and the *Five forces analysis* model for the external aspects.

To do the SWOT analysis, we propose some tips to improve it :

- Do the analysis of your company now (not in the past nor in the future).
- Describe the Strengths, Weaknesses, Opportunities and Threats and not speak about how to resolve it !
- Try to analyze the most of things as possible using the «Porter's Value Chain» and the «Porter five forces analysis».
- Be honest with yourself in the analysis (do not hide any negative points for example).

The goal of our proposition is to enable the user to identify the Strengths and Weaknesses of its organization, to define a strategy which will maximize the use of the Opportunities and try to protect the company against the Threats. These ideas could next enable the company to define a clear and sustainable strategy. The goal of this strategy should be to improve the operations of the company or to block the expand of competitors through a product, size or market strategy.

3.1.1 Strengths and Weaknesses : Porter's Value Chain

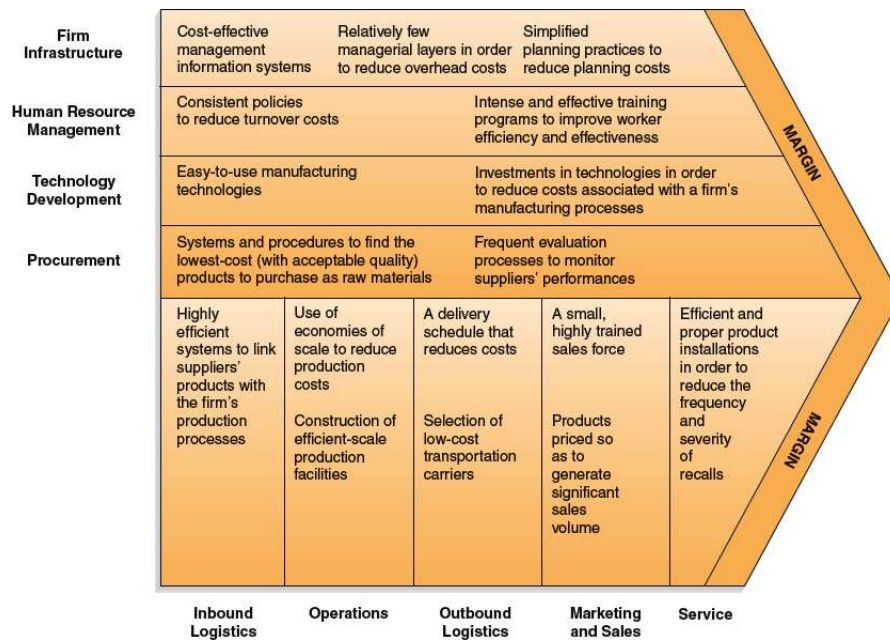


Figure 3.1: Porter Value Chain [25]

In his book[25], «Competitive advantage : Creating and Sustaining Superior Performance», Michael Porter introduces the Value Chain as a way to «disaggregate a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation.»[25]

The main goal of this model is to maximize value creation while minimizing costs. Once the activities of a firm are identified, improvements may be obtained by coordinating (and optimizing) linked activities.

To implement a sustainable strategy, «firms must be able to complete various primary and support activities in a competitive superior manner, in order to develop a competitive advantage and earn above-average returns.»[25]

The primary value chain activities are :

- **Inbound logistics** : Receiving and warehousing of raw materials obtained from the suppliers and ready to be used for producing the end product.
- **Operations** : Manufacturing of raw materials and goods into the final product or service. Value is added to the product at this stage as it moves through the production line.
- **Outbound logistics** : Warehousing and distribution of the finished goods to distribution centers, wholesalers, retailers or customers.
- **Marketing and Sales** : Identification of the customer needs, and the target group to establish an effective strategy and generate sales.
- **Services** : The support services offer some services like after sales training or warranties.

These activities may be vital in developing a competitive advantage. This is a generic model but each company will have to adapt it for its own business.

The support value chain activities are :

- **Firm infrastructure** : Finances, legal structure, management, structure administration, control systems have to work efficiently to drive the organization forward.
- **Human resource management** : Recruitment, training, correct development and compensation of the staff.
- **Technology development** : This is important in today's technological driven environment to obtain a competitive advantage within the organization by using technology development. It can be used to give online facilities to customers, reduce costs, develop new products, ...
- **Procurement** : This department has to purchase raw materials, supplies and equipment. It has to obtain the best price and quality for doing so.

Support value chain activities are often viewed as «overhead». Some companies could use these to develop a competitive advantage.

The value chain could be applied to a firm's value chain of upstream suppliers and downstream buyers. Each firm develops a competitive advantage in its own value chain creating a competitive value system.

This model is particularly useful for the manufacturing companies which create some tangible goods and sell these to other companies or consumers. Nowadays, more and more companies are services oriented. Unfortunately, the primary value chain is very linear and not so adapted to more networked business.

Since the SWOT analysis seems for some kind of organizations too linear, authors proposed improvements. Joe Peppard and Anna Rylander [19], for example, paid attention to this problem explaining the situation as follow. «The competitive realities of the *network economy* require that we rethink traditional methods for analyzing competitive environments. The old linear models do not account for the nature of alliances, competitors, complementors and other members in business networks. Adopting a contrasting network approach, organizations focus not on the company or the industry, but on the value creation system itself, within which different economic actors (suppliers, partners, allies, and customers) work together to co-produce value.»

This value network needs other models to represent the links and partnerships between the actors of the network. One of this proposed method is, for example, the e³value model proposed by Jaap Gordijn and Hans Hakkerms. We will treat this modeling method in the next chapter. The SWOT analysis can however be modelled and adapted to the majority of the companies.

In his book, Porter identifies the Inbound Logistics Operations as «Activities associated with receiving, storing and disseminating inputs to the product, such as material handling, warehousing, inventory control, vehicle scheduling and returns to suppliers.»[25] while the procurement refers to the «function of purchasing inputs used in the firm's value chain, not to the purchased inputs themselves»[25]. Following this definition, we think that the procurement

and the inbound logistics operations could be merged in «General Inbound Logistics» operations. We can also read that «Though purchased inputs are commonly associated with primary activities, purchased inputs are present in every value activity including support activities»[25]. That's why Porter decided to separate the procurement and the inbound logistics operations. We want to avoid misunderstanding and we think that the fusion of the two operations will give a more understandable Value Chain for the executive.

We propose to use the Porter's Value Chain but do not suppose that the operations have to occur in the order proposed by Porter. It is another reason to merge the concepts of procurement (support value chain) and inbound logistics (primary value chain). We could imagine for example that the marketing is useful before the operations to announce the future development of new products. In function of these remarks, we propose to use the following Value Chain in the roadmap.

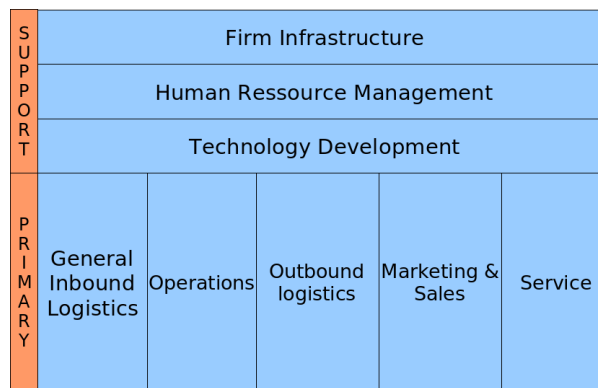


Figure 3.2: The Value Chain - modified version

3.1.2 Opportunities and Threats : Porter's five forces analysis

The goal of the Porter's five forces analysis is to summarize the Opportunities and Threats (external aspects) of a company. By doing so, it is possible to analyze the strategic position of a firm or discover some aspects which need a particular attention to distinguish the threats from the stakeholders of the company (clients, control authority, customers, suppliers, trade unions, competitors and partners). Porter referred to those forces close to a company that affect its ability to serve its customers and make profit. So it refers to the micro-environment to contrast it with the more general term macro-environment. This model can be applied to the products or to the services indifferently. In the same way, the term «suppliers» includes all sources for inputs which are needed in order to provide goods or services.

At first, the analysis of the organization through the Porter's Five Forces model could seem an analysis of the threats but it also enables to elicitate the opportunities in the environment of the organization. For example, if the government decides to promote renewable energies, its impact will be positive for all the organizations in the sector.

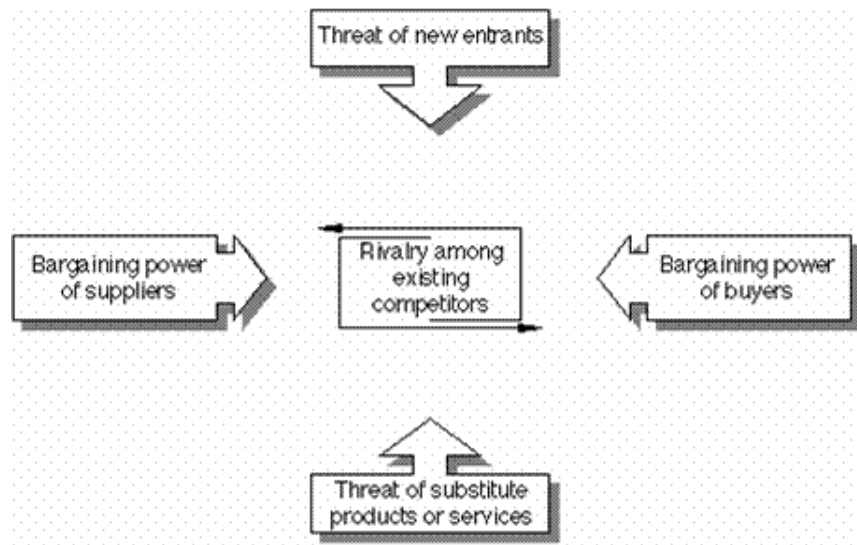


Figure 3.3: Porter's five forces model [15]

- **Threat of new entrants** : Usually the entry of new competitors will effectively decrease profitability. The threat of new entries will depend on the extent to which there are barriers to entry. These barriers are for example economies of scale, high initial investments costs, brand loyalty of customers or protected intellectual property like patents, licenses, etc.
- **Bargaining power of buyers** : The bargaining power of customers determines how much customers can impose pressure on margins and volumes. This pressure is likely to be high if there is a concentration of buyers, if the product can be replaced by substitutes or if it is not of strategic importance for the customer.
- **Threat of substitute products or services** : If some substitute products exist and if the switch to a new product is not so high, this threat can be high.
- **Bargaining power of suppliers** : The power of suppliers will be higher if there exists few or no alternative suppliers, if the product or service is necessary for the company and if the supplier switching cost is higher for example. The power of suppliers will be less important if customers are able to make very large purchases, reducing chance of supplier using power.
- **Rivalry among existing competitors** : On the contrary, the rivalry between existing players describes the intensity of competition between existing players in an industrial sector. To get some market share, the companies can compete aggressively on the price or in non-price dimension such as innovation, marketing, ... The rivalry is high if there are a lot of competitors, industry overcapacity, no entrance barriers, high level of advertising expense, etc.

A sixth factor could be added : government. Indeed, the governments have an important role for a lot of companies since they can give them some help. On the contrary, some law regulations can have a big impact on companies.

The QuickMBA website[40] proposes a list of factors that could influence the different threats. These ideas could help the user to define if threats are probable form his organization.

Each factor below can be a threat or an opportunity depending of its value in the organization. For example, «Absolute cost advantages» could be an opportunity if the organization has lower costs than its competitors to furnish its goods or services. Conversely, it could become a threat if the organization has higher costs.

- **Threat of new entrants :**

- «Absolute cost advantages
- Proprietary learning curve
- Access to inputs
- Government policy
- Economies of scale
- Capital requirements
- Brand identity
- Switching costs
- Access to distribution
- Expected retaliation
- Proprietary products »[40]

- **Bargaining power of buyers :**

- «Bargaining leverage
- Buyer volume
- Buyer information
- Brand identity
- Price sensitivity
- Threat of backward integration
- Product differentiation
- Buyer concentration vs. industry
- Substitutes available
- Buyers' incentives »[40]

- **Threat of substitute products or services :**

- «Switching costs
- Buyer inclination to substitute
- Price-performance trade-off of substitutes »[40]

- **Bargaining power of suppliers :**

- «Supplier concentration
- Importance of volume to supplier
- Differentiation of inputs
- Impact of inputs on cost or differentiation
- Switching costs of firms in the industry
- Presence of substitute inputs

- Threat of forward integration
- Cost relative to total purchases in industry »[40]
- **Rivalry among existing competitors :**
 - «Exit barriers
 - Industry concentration
 - Fixed costs/Value added
 - Industry growth
 - Intermittent overcapacity
 - Product differences
 - Switching costs
 - Brand identity
 - Diversity of rivals
 - Corporate stakes »[40]

The Porter's Value Chain and the Five Forces analysis can be very useful to help executives to brainstorm and give them some ways to find new ideas and strategies for the future of the organization.

3.1.3 Definition of a sustainable strategy

The SWOT analysis is also used to give a high-level view of the strength and weaknesses of the organization to strengthen opportunities or fight against threats. The user has then to find some ideas for each external aspect in order, for the future, to improve its activities or block the expansion of its competitors since the final goal is to improve the financial results of the organization. Using all these discovered ideas, he has to summarize them in order to define finally a sustainable strategy.

Michael Porter defined in the book «Competitive Strategy: Techniques for Analysing Industries and Competitors»[22] generic strategies that are commonly used in organization. The SWOT analysis is a good preliminary activity which helps at defining the best strategy for the organization. Porter identified the following strategies :

- *Cost Leadership Strategy* : The goal of this strategy is efficiency to decrease costs and increase competitiveness as much as possible.
- *Differentiation Strategy* : It consists to position his products or services on the market as to be enough different from competitors and add value for the customer.
- *Focus Strategy* : It consists to find a niche where the organization adapt his products to meet «perfectly» the focused market. A niche is interesting if there are less substitutes or where competition is lower.

3.1.4 Conclusion

Before doing a business analysis and to define a strategy, it is firstly necessary to have a very good understanding of the situation of an organization and of its environment. The organization has also to get a lot of information about its environment and about itself to be efficient and to improve its activities. That's why the SWOT analysis can be useful. The

organization should be considered as an actor at the center of its environment in which the partners and competitors try to reach their own goals. These goals can be represented through the i^*/GRL notations.

The SWOT analysis is particularly useful in the first steps of a project to prepare the definition of a strategy. It could seem a bit difficult to understand exactly which information should appear in this analysis and that's why we propose to use the Porter's model and the list of factors that could help the user to brainstorm about the organization. It would also enable him to scan the different aspects of this organization, positive and negative as well as internal and external.

3.2 Goal modeling

3.2.1 Introduction

It is interesting to combine the goal modeling with other models to help for early requirements engineering of business and e-business systems. It can also help to take into account the motivations and objectives of the project participants. Sometimes, it can change the value model or at least influence it.

Goal modeling is used in early phase requirements engineering to analyze and model the goals between the various actors around an organization. It helps understanding the *WHYs* and the organizational context to improve the future system and increase the chances of success. It helps also the executives to understand the motivations and the strategy used by each participant of a Network Value Constellation.

M. Petit, J. Gordijn and R. Wieringa[20] mentioned two specific requirements of goal modeling. «Firstly, a goal model should allow business managers and consultants to analyze the coherence of the goals of the businesses, participating in a value constellation and to check, informally, that they can be satisfied by implementing a value model. Secondly, the goal model should help in understanding why goals are met or not met, by describing causal relations among goals, and to determine whether a value model implements the strategic goals of the various actors involved.»[20]

We concentrate our use of goal modeling at a very strategical level. It means that we will not use the goal modeling like in information systems development level because we do not need a low level analysis in our roadmap. In this section, we give a description of the *i** and GRL notations. After that, we analyze deeply the meta-model of GRL.

3.2.2 *i**/GRL

*i** and GRL (Goal-oriented Requirements Language) are close notations. In fact, GRL is a combination of *i** and the NFR (Non-Functional Requirements) frameworks, both originating from the University of Toronto. *i** was initially proposed by Eric Yu. Both notations have been mainly created for requirement elicitation in information systems development but not only. We can also do organizational-, resources-, decisional-, economical-, and goal- design and analysis of an organization. *i** and GRL differs on the number of models and the used view. «*i** distinguish the Strategic Dependency model (SD) and the Strategic Rationale model (SR). The first model is used to describe the dependency relationships among various actors in an organizational context. The second model is used to describe stakeholder interests and concerns, and how they might be addressed by various configurations of systems and environments.»[35]

GRL is currently under development by ITU in its initiative for the Unified Requirement Notation (URN). *i** is also under development within the Tropos project.

3.2.3 Meta-model and constructs of *i**/GRL

This section is based on the deliverable DEM 1 of the UEML approach (p 331 to 337)[13], on the Requirement Engineering lecture of Patrick Heymans and Raimundas Matulevicius[12] and, on the GRL specifications[30].

We describe in this section the meta-model of the GRL and all the constructs.



- **«Actor»** : an actor is an active entity that carries out actions to achieve goals by exercising its know-how. Graphically, an actor may optionally have a boundary, with intentional elements inside. Each intentional element has an attribute called **HOLDER** whose value is the name of the actor, if any, that contains it. One could start modelling the domain using only actors without boundaries and therefore without intentional elements inside just to show the relationship among actors. One can also add intentional elements that are not inside any actors' boundary. Proceeding this way, one would be demonstrating how actors depend on each other to achieve their goals.
- **Goal** : a goal is a condition or state of affairs in the world that the stakeholders would like to achieve. How the goal is to be achieved is not specified, allowing alternatives to be considered. A goal can be either a business goal or a system goal. A business goal express goals regarding the business or state of the business affairs the individual or organisation wishes to achieve. A system goal expresses goals the target system should achieve and generally describes the functional requirements of the target information system.
- **Task** : a task specifies a particular way of doing something. When a task is specified as a sub-component of a (higher-level) task, this restricts the higher-level task to that particular course of action. Tasks can also be seen as the solutions in the target system, which will address goals and softgoals. These solutions provide operations, processes, data representations, structuring, constraints and agents in the target system to meet the needs stated in the goals and softgoals.
- **Resource** : a resource is an (physical or informational) entity, with which the main concern is whether it is available.
- **Softgoal** : a softgoal is a condition or state of affairs in the world that the actor would like to achieve, but unlike in the concept of (hard) goal, there are no clear-cut criteria for

whether the condition is achieved, and it is up to subjective judgement and interpretation of the developer to judge whether a particular state of affairs in fact achieves sufficiently the stated softgoal.

- **Belief** : beliefs are used to represent design rationale. Beliefs make it possible for domain characteristics to be considered and properly reflected in the decision making process, hence facilitating later review, justification and change of the system, as well as enhancing traceability.
- **Means-end Relationship** : GRL uses the Means-end statement to describe how goals are in fact achieved. Each task provided is an alternative means for achieving the goal. Normally, each task would have different types of impacts on softgoals, which would serve as criteria for evaluating and choosing among each task alternative.
- **Decomposition Relationship** : the GRL decomposition statement provides the ability to define what other elements need to be achieved or available in order for a task to perform.
- **Contribution Relationship** : The contribution relationship statement describes how softgoals, task, believes, or links contribute to others. A contribution is an effect that is a primary desire during modelling. We can find the following contribution in a model :
 - *AND contribution* : the relations between the contributing elements are «AND». Each of the sub-components is positive and necessary.
 - *OR contribution* : the relations between the contributing elements are «OR». Each of the sub-components is positive and sufficient.
 - *MAKE contribution* : the contribution of the contributing element is positive and sufficient.
 - *BREAK contribution* : the contribution of the contributing element is negative and sufficient.
 - *HELP contribution* : the contribution of the contributing element is positive but not sufficient.
 - *HURT contribution* : the contribution of the contributing element is negative but not sufficient.
 - *SOME+ contribution* : the contribution is positive, but the extent of the contribution is unknown.
 - *SOME- contribution* : the contribution is negative, but the extent of the contribution is unknown.
 - *EQUAL contribution* : there is equal contribution in both directions.
 - *UNKNOWN contribution* : there is some contribution, but the extent and the sense (positive or negative) of the contribution is unknown.
- **Dependency** : the Dependency statement of GRL describes an intentional relationship between two actors, i.e., one actor (*Depender*) depends on another actor (*Dependee*) on something (*Dependum*). A dependency link connects (an intentional element of) the depender actor with (the intentional element of) another actor it depends on.
- **Correlations** : correlations allow for expressing knowledge about interactions between intentional elements in different categories, and to encode such knowledge. A correlation link is the same as a contribution link except that the contribution is not an explicit desire, but is a side effect. The effect of all incoming correlation links on a softgoal may need to be

evaluated by the user on a case-by-case basis. There are eight distinct kinds of correlations : BREAK, HURT, SOME-, UNKNOWN, SOME+, HELP, MAKE and EQUAL. They are the same as the contributions except the AND and OR contributions.»[35]

The GRL specification document is really precise and include XML definition, graphical notation and examples.

Below, you can see an example of a GRL model. It shows the main elements described above. This model was designed using OME (Organization Modelling Environment) ¹

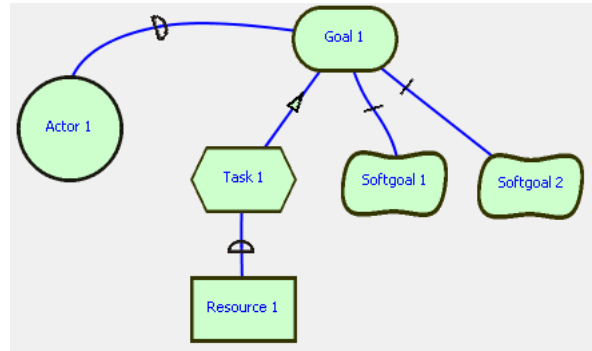


Figure 3.5: Example of GRL notations

3.2.4 Conclusion

In this section, we presented an introduction to the GRL model. We gave a brief overview of its origin and a detailed description of its constructions. Finally, we presented the main components of a GRL model in an example. The goal models can be used at different steps of a project development. We use it at a strategical level and we think that it could be used further during the software development for example.

¹This application is available on the website : <http://www.cs.toronto.edu/km/ome/>

Chapter 4

Business level

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In this chapter, we analyze all aspects of a business model at the business level. It is more focused on operational aspects of the business and less on the strategical point of view that we developed in the previous chapter through the SWOT analysis.

We present the taxonomies of business models by P. Weill and M. Vitale[32], Timmers[29] and Rappa[41]. We also present the e-Business Model Ontology (eBMO) of A. Osterwalder[18] that structures precisely all aspects of a business model. Lastly, we see in details the e3value methodology developed by J. Gordijn[9] which represents all economical flows of a company.

The languages and methods cover each a part of a business model and are specially made for it. We chose them because they cover particularly well an interesting part of the business model and can help the executives to improve and complete the business model of the organization they represent.

4.1 Taxonomies of business models

The taxonomies of business models are useful to classify the organization in a group and so better understand its operation using the analysis of other companies in the same group than the one studied. After this step of our approach, the executive will be able to precisely define the role of his organization and find its role in the market.

Some taxonomies of business models were developed in the literature[3]. We can mention the taxonomies of Timmers[29], Rappa[41] and Weill & Vitale[32]. We present the three taxonomies in this section. The taxonomy of Weill & Vitale composed of eight Atomic Business Models(ABMs) is explained in details and «most taxonomies can be traced back to these eight basic models»[3]. We can add that the key success factors, core competencies and infrastructure's requirements are developed by Weill & Vitale for each ABM in «Place to Space: Moving to eBusiness Models »[32]. They also developed a graphical notation to represent each Atomic Business Model : the Business Schematics.

4.1.1 Weill & Vitale

Weill & Vitale (researchers from the *Sloan School of Management* at the *Massachusetts Institute of Technology*) developed «Atomic Business Models» to classify an organization.

The Atomic Business Models give a typology of business models and can help the user to compare his organization to others. It allows also to provide some advices in order to find opportunities and fight threats. In other words : to achieve more easily the strategy introduced in the strategic level with the SWOT analysis.

Weill & Vitale describe the environment of an organization with their concept of Atomic Business Models [32]. In fact, an Atomic Business Model is an organizational configuration around an organization to create value and generate profit. They consider eight different Atomic Business Models : Content Provider, Direct to Consumer, Full-Service Provider, Whole-of-Enterprise, Intermediary (Portals, Agents, Auctions, Aggregators,...), Shared Infrastructure, Virtual Community and Value net Integrator. Weill & Vitale developed a graphical notation to describe the stakeholders and the flows (information, money and product) in each model : the «Business Schematics». To create a business model representation, it is possible combine the different models.

Model Name	Brief Description of Business
Content Provider	Provides content (information, digital products, and services) via intermediaries.
Direct to Customer	Provides goods or services directly to customer, often bypassing traditional channel members.
Full Service Provider	Provides full range of services in one domain (e.g. financial, health) from own products and best of breed, attempting to own primary customer relationship.
Intermediary	Brings together buyers and sellers by concentrating information.
Shared Infrastructure	Brings together multiple competitors to cooperate by sharing common IT infrastructure
Value Net Integrator	Coordinates activities across the value net by gathering, synthesizing and distributing information.
Virtual Community	Creates and facilitates an online community of people with a common interest enabling interaction and service provision
Whole of Enterprise/ Government	Provides a firm-wide single point of contact, consolidating all services provided by a large , multi-unit organization.

Table 4.1: Atomic Business Models defined by Weill & Vitale[32]

In this section, we will firstly analyze all elements composing the Business Schematics thanks to a meta-model. Secondly, we will describe the eight ABMs.

4.1.1.1 Concepts of the Business Schematics

In Business Schematics, we can find the following concepts :

- The enterprise
- The stakeholders (like suppliers and customers) in the model
- Flows of money, products and/or information
- The relationships between the stakeholders

To understand deeply the notation of Peter Weill and Michaël Vitale, we designed the following Meta-model of the Business Schematics. The model is not so complicated thanks to the few number of constructs used in it. This meta-model was created using the DB-Main application¹.

¹This application is available on <http://www.info.fundp.ac.be/libd/>

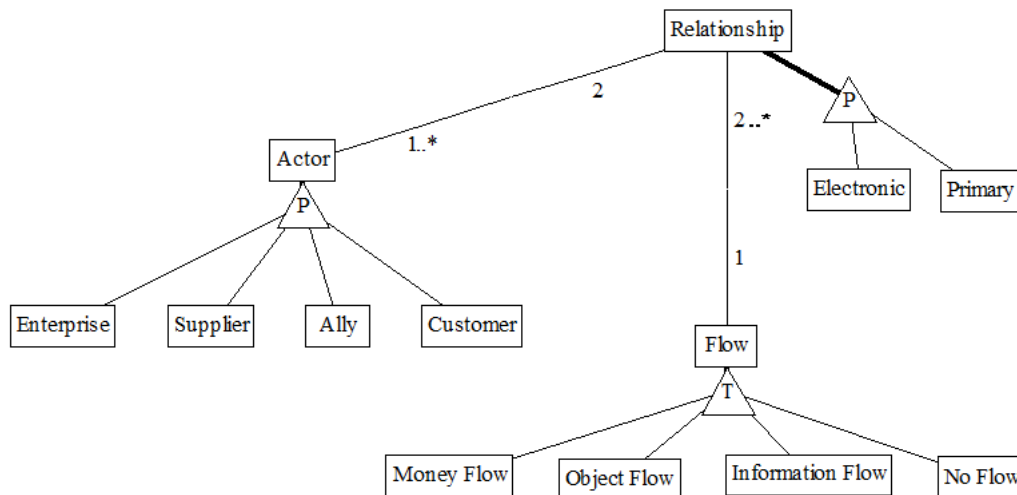


Figure 4.1: Weill & Vitale Meta-model

We describe below each concept used in the Meta-model :

1. **Actor** : In the Business Schematics, an important goal is to classify the enterprise and so, to discover the stakeholders around the organization. The class *Actor* can be instantiated by one of the following subtype :

- *Enterprise* : the organization for which we design the business model.
- *Supplier* : a supplier of the organization which provides a service, a product or information.
- *Ally* : stakeholder which helps the organization to improve its products or services.
- *Customer* : someone who consumes a product, a service or information from the organization.

An actor has at least one relationship with another actor. If an actor does not have any relationship with another, he is not useful in the model because there are no interactions with him.

2. **Relationship** : Between the actors, we can find relationships. There are two different types of relationships :

- *Primary relationships* : when the organization has a lot of potential to own the relationship with the customer. The possession of the customer's relationship can provide a great quantity of customer knowledge to the organization.
- *Electronic relationship* : an electronic connection where the messages are exchanged in the two directions. It is often an Internet connection but not always.

A relationship has two different actors. The actors could not be the same because we focus in this model on the external relationships between stakeholders in an environment. The relationship has two different flows, from the actor A to the actor B and from the actor B to the actor A.

3. **Flow** : A Flow is one of the direction in a relationship between two actors. A flow can have different values :

- *Money flow* : unidirectional flow that indicates a payment from an actor to another one. This flow is done in exchange of goods (often), services or information.
- *Product flow* : unidirectional flow that indicates a transfer of physical or numerical goods from an actor to another one. There is often a money flow in the other direction.
- *Information flow* : unidirectional flow that indicates a transfer of information between an actor and another one. The flow is not a numerical good and the information are often the result of a research, for example on the Internet.
- *No flow* : sometimes there is no flow. There is just a relationship in one direction or no defined flow at all on a relationship between two stakeholders.

We can combine the distinct flows. For example, it is possible to have a money flow and an information flow in the same direction.

4.1.1.2 8 Atomic Business Models

Content Provider

The *Content Provider* model represents the functioning of an organization providing contents to other organizations in exchange of money in most of case. The main function of these kind of companies is to gather or produce a lot of information through their contacts, sometimes to improve this information and then to give it to their customers. To be successful, an organization using this type of model has to be a leader in its category and dispose of a very good architecture which enables them to store a lot of contents and to give it to customers using the well-known standards.

The sources of revenue can be from a fixed fee by ally but it could also be a commission (on consumption by customer).

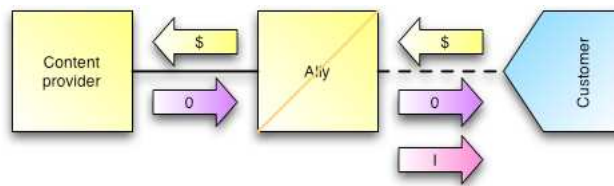


Figure 4.2: Atomic Business Model Content Provider.[32]

Direct to Customer

The *Direct to Customer* model represents the functioning of an organization selling its products via the Internet and manufacturing these goods (or services) by itself. This system enables the manufacturers to bypass intermediaries, and so, earn more money out of their products. A very well-known example of direct-to-customer organization is Dell which sells its computers through its website and propose to the customer to configure his computer as he wishes.

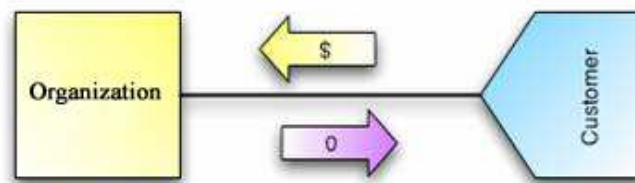


Figure 4.3: Atomic business model Direct to customer.[32]

Full Service Provider

The *Full Service Provider* model represents the functioning of an organization selling goods via the Internet but getting the products from suppliers. An example of well-known organization using this model is Amazon. The main goal of these companies is to cover a whole market segment market which is impossible for the Direct to Customer companies since they only sell the goods that they manufacture.

A Full Service Provider organization could also sell products that they manufacture. In this case, these companies are both Full Service Provider and Direct to Customer.

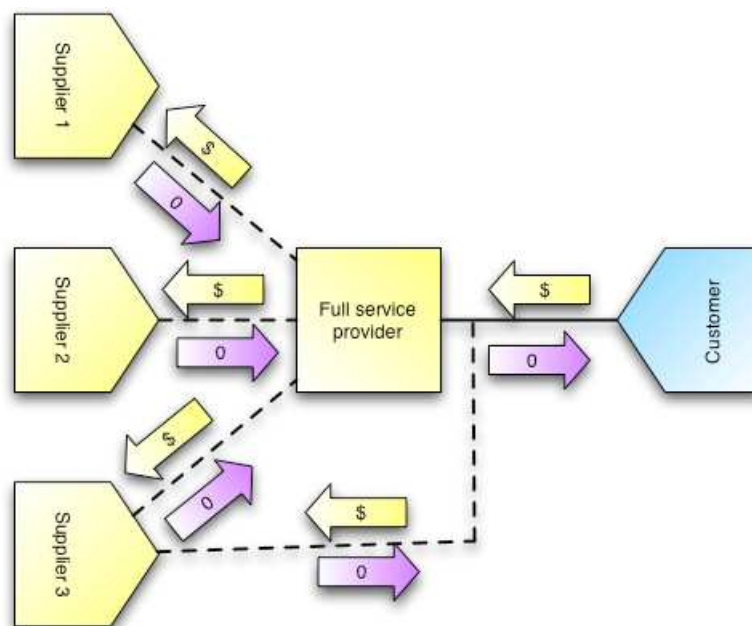


Figure 4.4: Atomic business model Full Service Provider.[32]

Intermediary

The *Intermediary* model represents the functioning of companies like electronic markets, portals, auctions, electronic malls, shopping agents, etc which propose to be intermediary between people or companies, for example between buyers and sellers or to provide any kind of products or content produced by another organization. A lot of organization follow this model since this definition is quite large.

eBay is an intermediary between buyers and sellers and is perhaps the most well-known organization of this type. We could also mention Bobex which is a Belgian organization which plays the same role as eBay between professionals.

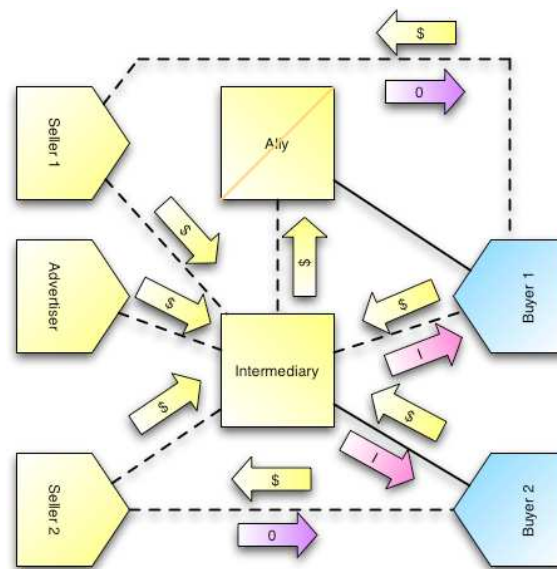


Figure 4.5: Atomic Business Model Intermediary.[32]

Shared infrastructure

The *Shared Infrastructure* model represents the functioning of companies sharing a big and expensive infrastructure. To be successful, they need a number of customers which is large enough and a good cost structure. It means that it is better to get several source of revenues and do not let one customer to be the principal source of revenues. In this case, the organization would be too dependent of this customer.

A good example of this model is ABACUS which is an airline reservation system. It enables a lot of companies to share this infrastructure, and so to minimize costs.

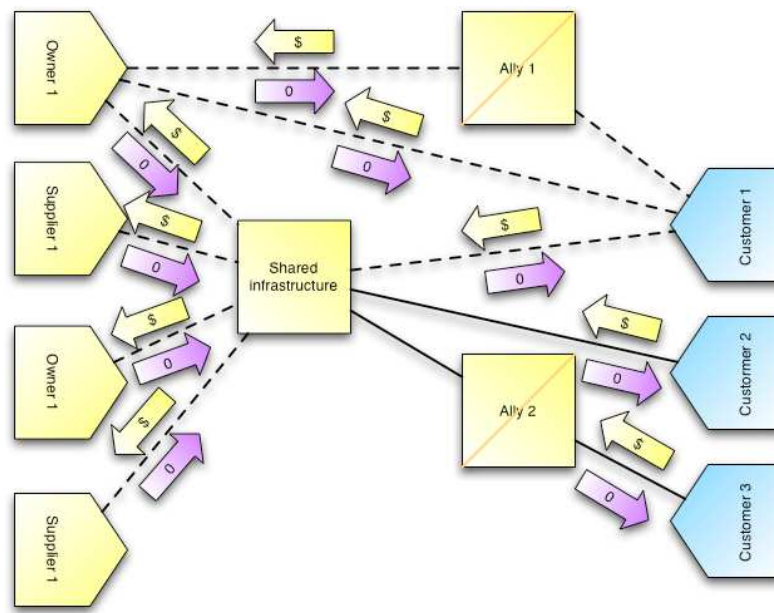


Figure 4.6: Atomic Business Model Shared infrastructure.[32]

Value Net Integrator

The *Value Net Integrator* model represents the functioning of companies coordinating activities across the value net by using and treating this information to distribute it to the customers. The goal of this kind of organization is to gather information (usually quite precise : from one type of industry for example), synthesize it and then to distribute it to its customers in exchange of money, most of time.

The key success factors of this kind of organization is to get as much information as possible on the customers, develop a well-known brand and give good information, in a way that the customers like.

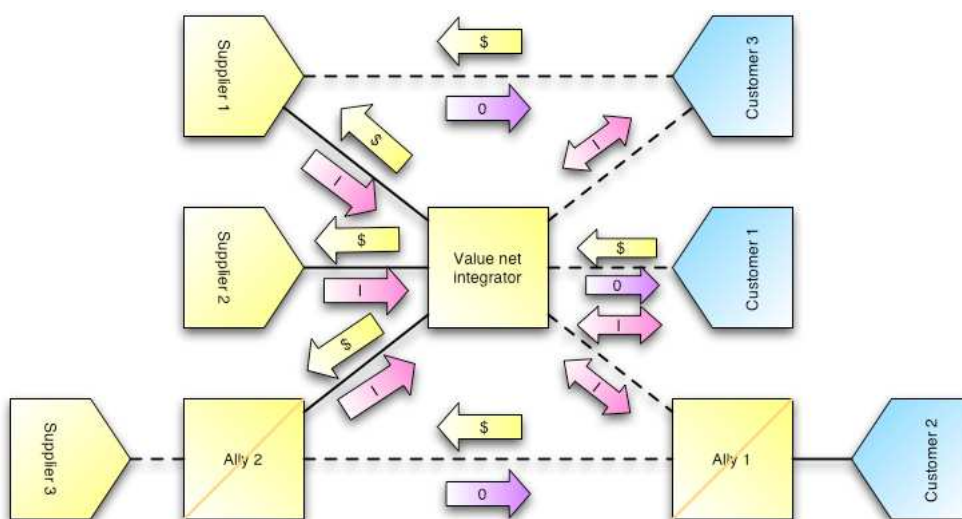


Figure 4.7: Atomic business model Value Net Integrator.[32]

Virtual Community

The *Virtual Community* model represents the functioning of companies which gather people to make them meeting each other and creating a community. One of the most growing *Virtual Community* organization these days is Facebook which allows people to put some information about them, some pictures and to gather their friends to easily contact or get information about them.

Some obvious synergies can exist between these kind of companies with Direct-to-Customer or Full Service Provider model. The virtual community can help an organization which sells some goods through the Internet to get its customers to trust in the organization and that they come back on the website.

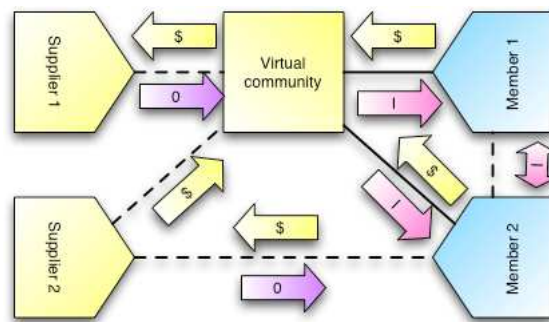


Figure 4.8: Atomic Business Model Virtual Community.[32]

Whole of Enterprise

The *Whole of Enterprise* model represents the functioning of companies, departments or administration which allow users/customers to get a lot of services from one single-point of contact. It enables easier way to get information for the customers and costs reducing for the organization.

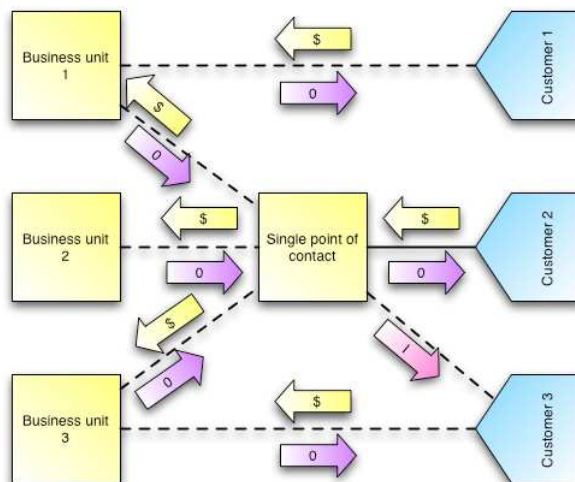


Figure 4.9: Atomic Business Model Whole of Enterprise.[32]

4.1.2 Taxonomies by Timmers and Rappa

Other authors tried to describe different kinds of business model. We can quote Timmers [29] and Rappa[41].

Timmers mentioned eleven business models in his work:

- **«E-shop** : Stands for the Web marketing and promotion of an organization or a shop and increasingly includes the possibility to order and to pay.
- **E-procurement** : Describes electronic tendering and procurement of goods and services.
- **E-auction** : Consists of a collection of e-shops, usually enhanced by a common umbrella, for example a well-known brand.
- **E-mall** : Stands for the electronic implementation of the bidding mechanism also known from traditional auctions.
- **Third-party marketplace** : A model that is suitable when an organization wishes to leave the Web marketing to a 3rd party (possibly as an add-on to their other channels). Third-party marketplaces offer a user interface to the supplier's product catalogue.
- **Virtual communities** : This model brings together virtual communities that contribute value in a basic environment provided by the virtual community operator. Membership fees and advertising generate revenues. It can also be found as an add-on to other marketing operations for customer feedback or loyalty building.
- **Value chain service provider** : Stands for companies that specialize on a specific function for the value chain, such as electronic payment or logistics.
- **Value-chain integrators** : Represents the companies that focus on integrating multiple steps of the value chain, with the potential to exploit the information flow between those steps as further added value.
- **Collaborations platforms** : Companies of this group provide a set of tools and information environment for collaboration between enterprises.
- **Information brokers** : Embraces a whole range of new information services that are emerging to add value to the huge amounts of data available on the open networks or coming from integrated business operations.
- **Trust and other services**: Stands for trust services, such as certification authorities and electronic notaries and other trusted third parties. »[18]

Michael Rappa proposes also nine business models. Each model described below can be refined in a more precise type of organization. For more information about these refinements, please visit the website of Michael Rappa[41].

- **«Brokerage** : Brokers are market-makers: they bring buyers and sellers together and facilitate transactions. Usually a broker charges a fee or commission for each transaction it enables. The formula for fees can vary. A lot of companies can be classified in this category since the author thinks that it fits for eBay, Amazon as well as Paypal !
- **Advertising** : The web advertising model is an extension of the traditional media broadcast model. The broadcaster, in this case, a web site, provides content and services (like email, IM, blogs) mixed with advertising messages in the form of banner ads.

- **Infomediary** : These firms function as infomediaries (information intermediaries) assisting buyers and/or sellers understand a given market.
- **Merchant** : Wholesalers and retailers of goods and services. Sales may be made based on list prices or through auction.
- **Manufacturer (Direct)** : The manufacturer or "direct model", it is predicated on the power of the web to allow a manufacturer (i.e., an organization that creates a product or service) to reach buyers directly and thereby compress the distribution channel.
- **Affiliate** : The affiliate model, provides purchase opportunities wherever people may be surfing. It does this by offering financial incentives (in the form of a percentage of revenue) to affiliated partner sites.
- **Community** : The viability of the community model is based on user loyalty. Users have a high investment in both time and emotion. The Internet is inherently suited to community business models and today this is one of the more fertile areas of development, as seen in rise of social networking.
- **Subscription** : Users are charged a periodic (daily, monthly or annual) fee to subscribe to a service.
- **Utility** : The utility or "on-demand" model is based on metering usage, or a "pay as you go" approach. »[41]

4.1.3 Conclusion

The taxonomy of business models is very interesting to analyze precisely the classification of the organization with the links with its partners, allies, customers. We chose the model of Weill & Vitale because we think that it is easy to understand an Atomic Business Model and Business Schematics thanks to the few numbers of their constructions and because it is close to business terminology.

Moreover, this taxonomy is interesting to think about an idea of new service or product and to find «similar» projects that can give some advices to go faster and directly to the right market.

Thanks to all information in this chapter, the website will help the user to find his ABM(s). We explain how in the next part about our roadmap. The user will find in the website a description of the model(s) found and the Weill & Vitale model. These information will be useful to give some information or tips in relation with the type of organization identified.

4.2 The eBusiness Model Ontology

The eBusiness Model Ontology covers all aspects of a business model. It is a very interesting ontology because it is based on a doctoral thesis which makes a good synthesis of a business model. eBMO goes in details on the value proposition of a company, the customer relationships, the infrastructure management and the financial aspects. eBMO helps to discover and analyze all aspects of the business model. These completeness is its main advantage and improves the exploration of non-common aspects of an idea or a project. All these advantages convinced us to choose eBMO as the centre of our thesis.

The State of the Art described below is inspired by the creator of this ontology, Alexander Osterwalder and his thesis in which he describes in details all the aspects of his work. For more details about the eBusiness Model Ontology, please refer to his thesis [18].

4.2.1 Presentation of the ontology

In order to provide an ontology which allows to accurately describe the business model of a firm, Alexander Osterwalder suggests in his thesis[18] to adopt a framework which emphasizes on the following four areas that a business model has to address :

- «Product: What business the company is in, the products and the VALUE PROPOSITIONS offered to the market.
- Customer interface: Who the company's TARGET CUSTOMERS are, how it delivers them products and services, and how it builds strong RELATIONSHIPS with them.
- Infrastructure management : How the company efficiently performs infrastructural or logistical issues, with whom, and as what kind of network enterprise.
- Financial aspects : What is the REVENUE MODEL, the COST STRUCTURE and the business models sustainability. »[18]

As he did not want to stay at this level of granularity and wanted to move towards something more detailed and formal, he splits the four pillars of the business model ontology into nine interrelated business model building blocks, or simply business model elements shown in the Figure 4.2.

Pillar	Building Block of Business Model	Description
Product	Value Proposition	A Value Proposition is an overall view of a company's bundle of products and services that are of value to the customer.
Customer Interface	Target Customer	The Target Customer is a segment of customers a company wants to offer value to.
	Distribution Channel	A Distribution Channel is a means of getting in touch with the customer.
	Relationship	The Relationship describes the kind of link a company establishes between itself and the customer.
Infrastructure Management	Value Configuration	The Value Configuration describes the arrangement of activities and resources that are necessary to create value for the customer.
	Capability	A capability is the ability to execute a repeatable pattern of actions that is necessary in order to create value for the customer.
	Partnership	A Partnership is a voluntarily initiated cooperative agreement between two or more companies in order to create value for the customer.
Financial Aspects	Cost Structure	The Cost Structure is the representation in money of all the means employed in the business model.
	Revenue Model	The Revenue Model describes the way a company makes money through a variety of revenue flows.

Table 4.2: Nine interrelated business model elements eBMO[18]

The aim of his work was to propose an ontology of business models integrating the existing work and going a step further by conceptualizing every single element and then integrating them into a whole.

Product

Definition: «PRODUCT covers all aspects of what a firm offers its customers. This includes not only the company's bundles of products and services but the manner in which it differentiates itself from its competitors. PRODUCT is composed of the element VALUE PROPOSITION, which can be decomposed into its elementary OFFERING(s)»[18].

1. Value proposition

The VALUE PROPOSITION is the first of the nine elements of the business model ontology and can be understood as the statements of benefits that are delivered by the firm to its external constituencies.

Name of BM-Element	VALUE PROPOSITION
Definition	A VALUE PROPOSITION represents <i>value for</i> one or several TARGET CUSTOMER(s) and is based on one or several CAPABILITY(ies). It can be further decomposed into its <i>set of</i> elementary OFFERING(s). A VALUE PROPOSITION is characterized by its attributes DESCRIPTION, REASONING, VALUE LEVEL and PRICE LEVEL and an optional LIFE CYCLE.
Part of	PRODUCT
Related to	<i>Value for</i> TARGET CUSTOMER (1-n) <i>Based on</i> CAPABILITY (1-n)
Set of	elementary OFFERING(s) (0-n)
Cardinality	1-n
Attributes	Inherited from elementary OFFERING (section 4.2.2)
References	(Kambil, Ginsberg et al. 1997)

Table 4.3: eBMO Value proposition[18]

While the VALUE PROPOSITION element gives an aggregated view of a value bundle that a company offers a CUSTOMER SEGMENT, it can be further decomposed into a set of elementary OFFERINGS. By describing these different components of a VALUE PROPOSITION, a firm can better observe how it situates itself compared to its competitors. This will potentially allow a company to innovate and differentiate to achieve a competitive position.

Name of BM-Element	OFFERING
Definition	An elementary OFFERING is a part of an overall VALUE PROPOSITION. It is characterized by its attributes DESCRIPTION, REASONING, LIFE CYCLE, VALUE LEVEL and PRICE LEVEL.
Element of	VALUE PROPOSITION (1-n)
Cardinality	0-n
Attributes	NAME {abc} DESCRIPTION {abc} REASONING {USE, RISK, EFFORT} (0-n) VALUE LEVEL {ME-TOO, INNOVATIVE INNOVATION, EXCELLENCE, INNOVATION} PRICE LEVEL {FREE, ECONOMY, MARKET, HIGH-END} LIFE CYCLE {CREATION, PURCHASE, USE, RENEWAL, TRANSFER}

Table 4.4: eBMO Offering[18]

The attribute *reasoning* captures the «reasoning on why the firm thinks its VALUE PROPOSITION or a specific elementary OFFERING could be valuable to the customer. Normally value is created either through {USE} (e.g. driving a car), reduction of the customer's {RISK} (e.g. car insurance) or by making his life easier through reduction of his {EFFORTS} (e.g. home delivery of groceries)»[18].

Measuring the *value level* of a company's offer allows a firm to compare itself to its competitors :

- «{ME-TOO VALUE} (e.g. commodities) which means that the value of the bundle of products and services the firm offers its customers does not differentiate itself from the one of the competitors
- {INNOVATIVE IMITATION} (e.g. pocket PC) means that a company imitates an existing

VALUE PROPOSITION or elementary OFFERING, but improves value by adding innovative elements.

- {EXCELLENCE} (e.g. Swiss watches) means that value is pushed to its extremes and, of course, this kind of offer comes with a hefty fee.
- {INNOVATION} (e.g. Viagra in the 90's) means that a firm introduces either a completely new product or service or a revolutionary combination of products and services»[18].

The attribute *price level* compares the VALUE PROPOSITION's price level with the ones of their competitors :

- {FREE} : Some companies offer a VALUE PROPOSITION to the customer without asking for financial compensation. One example of this is the *Metro* newspapers that are distributed for free to commuters in Belgium. The income of these papers are essentially based on advertising and classified ads.
- {ECONOMY} : This is the model of companies which sell some goods or services at a lower price than the bulk of its competitors. An example of this kind of company is the airline company Ryanair.
- {MARKET} : Pricing at the market simply means little price demarcation from the competitors.
- {HIGH-END} : High-end prices are usually found in luxury goods, but also for new and innovative VALUE PROPOSITIONS (e.g. Rolex).

A VALUE PROPOSITION should be studied over its entire life cycle. Therefore Osterwalder introduces an attribute *life Cycle*, which has the goal of capturing at which one of the five stages ({VALUE CREATION}, {VALUE PURCHASE}, {VALUE USE}, {VALUE RENEWAL} and {VALUE TRANSFER}) of the value life cycle an elementary OFFERING creates value.

Value can be created during the creation phase by integrating the customer in the {VALUE CREATION} process and create additional value(1). It is for example possible to ask a personalization to the customer and print it on the product. «Value can also be created during the {PURCHASE} phase(2) by improving and facilitating the customer's buying experience. The first step of improvement is streamlining the transaction in itself while the most traditional and best known phase of the value life cycle is the value derived from its {USE} (3). In other words the value that comes from the actual consumption of products and services»[18].

In some cases it can be interesting to {RENEW VALUE} after or during its consumption(4). This can be necessary when value is used up (e.g. an empty phone card), expires (e.g. expiry of a magazine subscription), becomes obsolescent (e.g. outdated machinery) or is disfunctional (e.g. need for a car service). At the last stage of the value life cycle, the {VALUE TRANSFER} (5), the customer has the possibility to transfer the value he has acquired. He may want to do this because the VALUE PROPOSITION has lost value for him, but he can still gain something by transferring this value. Amazon, for example, enables the customers to sell second hand books on their website.

Graphical way of representing this information

Kim and Mauborgne [14] present a very interesting way to present the advantages and disadvantages of a VALUE PROPOSITION in comparison with the competitors (Figure 4.10). In

this method, they present on the left the OFFERINGS which are more related on the price and the economical aspects for the customer of the organization. They place the organization and one or several competitors on this scale and evaluate their {PRICE LEVEL}. On the right, Kim and Mauborgne position the more functional and service OFFERINGS. In this part, they use the {VALUE LEVEL} of each OFFERING to compare them. This graphical method shows easily the advantages and disadvantages of the VALUE PROPOSITIONS proposed by the analyzed actors.

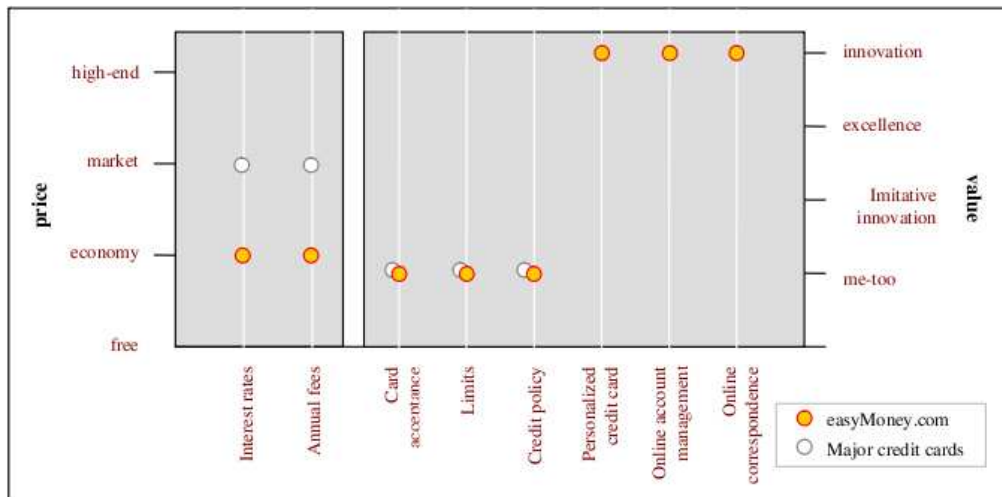


Figure 4.10: Strategy canvas easyMoney.com based on [14]

Customer Interface

The second pillar of the business model ontology is about Customer Relationship. The relationship with customers is, no doubt, essential for companies. The customer relationship element refers to the way a firm goes to market, how it actually reaches its customers and how it interacts with them.

2. Target Customer

«Selecting a company's target customers is all about segmentation. The market segmentation is a process used to cluster people with similar needs into individual and identifiable groups»[25]. Effective segmentation enables a company to allocate investment resources to target customers that will be most attracted by its value proposition. The most general distinction of target customers exists between business and/or individual customers, commonly referred to as business-to-business (B2B) and business-to-consumer (B2C).

Name of BM-Element	TARGET CUSTOMER
Definition	A TARGET CUSTOMER segment defines the type of customers a company wants to address.
Part of	CUSTOMER INTERFACE
Related to	<i>Receives</i> a VALUE PROPOSITION (1-n)
Set of	CRITERION(s) (0-n)
Cardinality	1-n
Attributes	Inherited from CRITERION (see section 4.3.2)
References	(Kotler 1999) (Hagel and Armstrong 1997)

Table 4.5: eBMO Target Customer[18]

In order to refine a customer segmentation, companies usually decompose a TARGET CUSTOMER segment into a set of further characteristics that Alexander Osterwalder calls CRITERION. These could be of geographical and/or socio-demographic nature.

Name of BM-Element	CRITERION
Definition	A CRITERION defines the characteristics of a TARGET CUSTOMER
Element of	TARGET CUSTOMER
Cardinality	0-n
Attributes	<i>NAME</i> {abc} <i>DESCRIPTION</i> {abc}

Table 4.6: eBMO Criterion[18]

3. Distribution channel

Distribution channels are the «connections between a firm's VALUE PROPOSITIONS and its TARGET CUSTOMERS. A distribution CHANNEL allows a company to deliver value to its customers, either directly, for example through a sales force or over a Website, or indirectly through intermediaries, such as resellers, brokers or cybermediaries. A distribution CHANNEL also describes how a company gets in touch with its customers. Its purpose is to make the right quantities of the right products or services available at the right place, at the right time to the right people»[18].

Name of BM-Element	CHANNEL
Definition	A distribution CHANNEL describes how a company <i>delivers</i> a VALUE PROPOSITION to a target CUSTOMER SEGMENT. Normally a firm disposes of one or several direct or indirect CHANNEL(s) that can be decomposed into their LINK(s).
Part of	CUSTOMER INTERFACE
Inherits from	LINK
Related to	<i>Delivers</i> VALUE PROPOSITION (1-n) <i>Delivers to</i> TARGET CUSTOMER (1-n)
Set of	LINK(s) (0-n)
Cardinality	1-n
Attributes	Inherited from the LINK element (see section 4.3.5)
References	(Moriarty and Moran 1990)

Table 4.7: eBMO Channel[18]

An important element of a CHANNEL strategy in a business model is managing channel conflicts. When more than one CHANNEL compete for the same customers there is a high chance

of channel conflict. Direct selling over the web could improve margins and means new market opportunities for example but the expansion of the range of CHANNELS can also increase the potential of conflicts between CHANNELS and asks strong management.

While the CHANNEL element gives an aggregated view of how a company reaches its customers, it can be further decomposed into its channel LINKS. By describing these different components of a CHANNEL, a firm can better observe how it gets in touch with its customers compared to its competitors.

In addition to the traditional role of simply delivering value, modern channels and their channel LINKS increasingly have a potential for value creation and thus contribute to a firm's VALUE PROPOSITION. Therefore the channel LINK element inherits the characteristics of the element OFFERING because it can be simultaneously part of a channel and of the firm's value creating elements.

Name of BM-Element	LINK
Definition	A channel LINK is part of a CHANNEL and describes a specific channel role. It may be part of the VALUE PROPOSITION and it may be related to an other LINK.
Element of	CHANNEL (1-n)
Inherits from	OFFERING
Related to	A LINK can be <i>connected to</i> an other LINK (0-n) The channel role described by a channel LINK is <i>delivered by</i> an ACTOR (0-n)
Cardinality	0-n
Attributes	Inherited from OFFERING (section 4.2.2) <i>CUSTOMER BUYING CYCLE</i> {AWARENESS, EVALUATION, PURCHASE, AFTER SALES} (overwritten by <i>VALUE LIFE CYCLE</i> if the LINK element is also an OFFERING)

Table 4.8: eBMO Link[18]

The *Customer Buying Cycle* reflects all possible contact points between a seller and a customer in the context of the acquisition, possession and disposal of the product or service. More information about the different buying cycles are detailed in the figure 4.11.

Each LINK describes a part of the *Customer Buying Cycle* and facilitates a deep understanding of the way to contact and sell products to the customer.

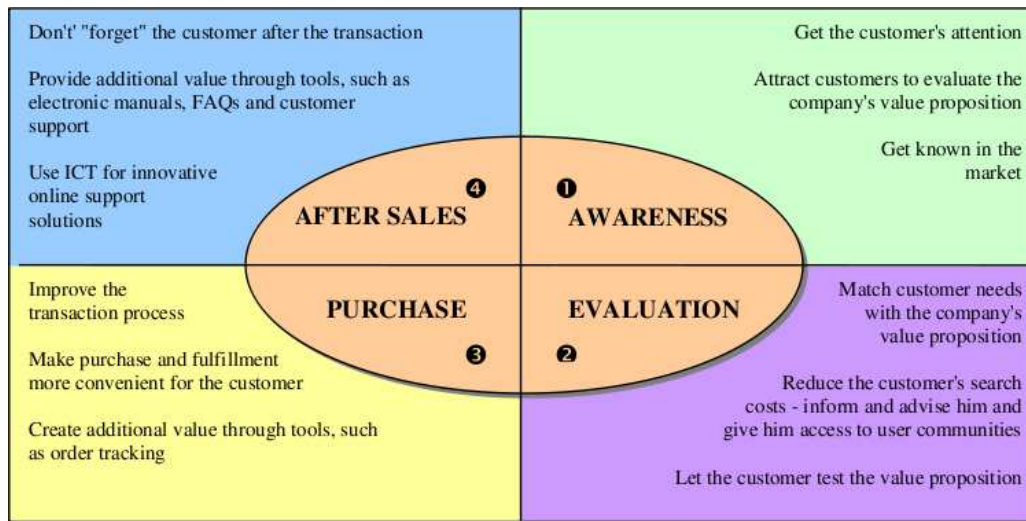


Figure 4.11: Customer Buying Cycle[18]

4. Relationship

«All customer interactions between a firm and its clients affect the strength of the relationship a company builds with its customers. But as interactions come at a given cost, firms must carefully define what kind of relationship they want to establish with what kind of customer. Profits from customer relationships are the lifeblood of all businesses. These profits can be achieved through the acquisition of new customers, the enhancement of profitability of existing customers and the extension of the duration of existing customer relationships »[8].

Companies must analyze customer data in order to evaluate the type of customer they want to seduce and acquire, are profitable and worth spending retention efforts and are likely to be subject to add-on selling. Then firms must define the different mechanisms they want to use to create and maintain a customer relationship and leverage customer equity.

Osterwalder decided to classify the relationships according to their *customer equity goals* :

- «{ACQUISITION} : Even firms with high retention rates lose customers and thus must continuously acquire new customers to stay in business.
- {RETENTION} : The goal of customer retention is to leverage customer acquisition investments.
- {ADD-ON SELLING} : Add-on selling is the activity associated with selling any additional products and services to current customers »[1]. These products can, but do not necessarily have to be related to each other.

Name of BM-Element	RELATIONSHIP
Definition	The RELATIONSHIP element describes the relationship a company establishes with a target CUSTOMER SEGMENT. A RELATIONSHIP is based on customer equity and can be decomposed into several RELATIONSHIP MECHANISMS.
Part of	CUSTOMER INTERFACE
Inherits from	relationship MECHANISM
Related to	A RELATIONSHIP promotes a VALUE PROPOSITION (1-n) A RELATIONSHIP is maintained with a TARGET CUSTOMER (1-n)
Cardinality	1-n
Attributes	CUSTOMER EQUITY {ACQUISITION, RETENTION, ADD-ON SELLING} All other attributes are inherited from the RELATIONSHIP MECHANISM (section 4.3.9)
References	(Blattberg, Getz et al. 2001)

Table 4.9: eBMO Relationship[18]

The relationship MECHANISM is «part of a RELATIONSHIP. It is a specific mechanism that has a function in relationship building with a company's customer. They contribute to personalization, trust and brand building»[18].

Name of BM-Element	relationship MECHANISM
Definition	A RELATIONSHIP MECHANISM is part of a RELATIONSHIP and describes the function it accomplishes between the company and its customers. It may also be a channel LINK or a part of the VALUE PROPOSITION.
Element of	RELATIONSHIP
Inherits from	LINK
Cardinality	0-n
Attributes	Inherited from LINK (section 4.3.5) <i>FUNCTION</i> {PERSONALIZATION, TRUST, BRAND}

Table 4.10: eBMO Relationship mechanism[18]

Infrastructure management

«The INFRASTRUCTURE MANAGEMENT pillar is about the how a company creates value. It describes what abilities are necessary to provide its VALUE PROPOSITIONs and maintain its CUSTOMER INTERFACE. This pillar specifies the business models capabilities and resources, their owners and providers, as well as who executes which activity and how they relate to each other»[18].

5. Value configuration

The main purpose of a company is the creation of value that customers are willing to pay for. This value is the outcome of a configuration of inside and outside activities and processes. The VALUE CONFIGURATION shows all activities necessary and the links among them, in order to create value for the customer.

Name of BM-Element	VALUE CONFIGURATION
Definition	The VALUE CONFIGURATION of a firm describes the arrangement of one or several ACTIVITY(ies) in order to provide a VALUE PROPOSITION.
Part of	INFRASTRUCTURE MANAGEMENT
Related to	The VALUE CONFIGURATION relies on a set of CAPABILITIES (1-n) The VALUE CONFIGURATION makes VALUE PROPOSITIONs possible (1-n)
Set of	ACTIVITYies
Cardinality	1-n
Attributes	CONFIGURATION TYPE {VALUE CHAIN, VALUE SHOP, VALUE NETWORK} Other attributes inherited from ACTIVITY (section 4.4.4)
References	(Porter 1985; 2001) (Stabell and Fjeldstad 1998)

Table 4.11: eBMO Value configuration[18]

Osterwalder distinguished three basic *value configuration types*, which are {THE VALUE CHAIN} identified by Porter[24], {THE VALUE SHOP} and {THE VALUE NETWORK} identified by Stabell and Fjeldstad[27].

- «The value creation logic of a {VALUE CHAIN} is the transformation of inputs into products. The main interactivity relationship logic is sequential.
- In the {VALUE SHOP} configuration type, a firm concentrates on discovering what the client wants, figures out a way to deliver value, determines whether the customer's needs were fulfilled and repeats the process in an iterative way if necessary. The value creation logic of a value shop is resolving customer problems.
- In the {VALUE NETWORK} configuration, rather than focusing on logistics such as the importation and delivery of raw materials and how they are transformed into finished goods, the intermediary must focus on network promotion and contract management, service provisioning and infrastructure operations. The value creation logic of a value network is linking customers»[18].

Activities are at the heart of what a business does. They are actions a company performs in order to create and generate profits. An ACTIVITY is executed by an ACTOR, which can be the firm or one of its partners.

Name of BM-Element	ACTIVITY
Definition	An ACTIVITY is an action a company performs to do business and achieve its goals.
Element of	VALUE CONFIGURATION
Related to	An ACTIVITY is executed <i>by</i> an ACTOR (1-n) An ACTIVITY <i>{fits}, {flows} to or is {shared}</i> by one or several RESOURCE(s) (0-n)
Cardinality	0-n
Attributes	NAME {abc} DESCRIPTION {abc} ACTIVITY LEVEL {PRIMARY ACTIVITY, SUPPORT ACTIVITY} ACTIVITY NATURE (0-1) <ul style="list-style-type: none"> - for Value Chain {INBOUND LOGISTICS, OPERATIONS, OUTBOUND LOGISTICS, MARKETING AND SALES, SERVICE} - for Value Shop {PROBLEM FINDING AND ACQUISITION, PROBLEM SOLVING, CHOICE, EXECUTION, CONTROL AND EVALUATION} - for Value Network {NETWORK PROMOTION AND CONTRACT MANAGEMENT, SERVICE PROVISIONING, NETWORK INFRASTRUCTURE OPERATION}

Table 4.12: eBMO Activity[18]

Osterwalder decided to distinguish the *activity level* of the ACTIVITY element in two concepts defined below :

- $\ll\{\text{PRIMARY ACTIVITY}\}$: Primary activities are those that are involved in the creation of the VALUE PROPOSITION and its marketing and delivery.
- $\{\text{SUPPORT ACTIVITY}\}$: Support activities are the underlying fundament that allow the primary activities to take place. This includes activities such as firm infrastructure, human resource management, technology development and procurement»[23].

These two concepts are the basis of the Porter's Value Chain. We analyze this concept in the chapter about the strategical level. It can be a good basis for this part of eBMO.

The *activity nature* of the ACTIVITY describes the type of a primary activity. It can be empty or take one value according to its basic value configuration type [18] :

- $\ll\text{Value chain}$
 - $\{\text{INBOUND LOGISTICS}\}$
 - $\{\text{OPERATIONS}\}$
 - $\{\text{OUTBOUND LOGISTICS}\}$
 - $\{\text{MARKETING \& SALES}\}$
 - $\{\text{SERVICE}\}$
- Value shop
 - $\{\text{PROBLEM FINDING AND ACQUISITION}\}$: Activities associated with the recording, reviewing, and formulating of the problem to be solved and choosing the overall approach to solve the problem.
 - $\{\text{PROBLEM SOLVING}\}$: Activities associated with generating and evaluating alternative solutions.
 - $\{\text{CHOICE}\}$: Activities associated with choosing among alternative problem solutions.
 - $\{\text{EXECUTION}\}$: Activities associated with communicating, organizing, and implementing the chosen solution.

- {CONTROL AND EVALUATION} : Activities associated with measuring and evaluating to what extent implementation has solved the initial problem statement.
- Value network
 - {NETWORK PROMOTION AND CONTRACT MANAGEMENT} consists of activities associated with inviting potential customers to join the network, selection of customers who are allowed to join and the initialization, management, and termination of contracts governing service provisioning and charging.
 - {SERVICE PROVISIONING} consists of activities associated with establishing, maintaining, and terminating links between customers and billing for value received. The links can be synchronous as in telephone service, or asynchronous as in electronic mail service or banking. Billing requires measuring customers use of network capacity both in volume and time.
 - {NETWORK INFRASTRUCTURE OPERATION} consists of activities associated with maintaining and running a physical and information infrastructure. The activities keep the network in an alert status, ready to service customer requests»[18].

6. Capability

Wallin [31] describes CAPABILITIES as repeatable patterns of action in the use of assets to create, produce, and/or offer products and services to the market. Increasingly, the CAPABILITIES are outsourced to partners, while using e-business technologies to maintain the tight integration that is necessary for a firm to function efficiently.

Name of BM-Element	CAPABILITY
Definition	A CAPABILITY describes the ability to execute a repeatable pattern of actions. A firm has to dispose of a number of CAPABILITYies to be able to offer its VALUE PROPOSITION. CAPABILITYies are based on a set of resources from the firm or its PARTNER(s).
Part of	INFRASTRUCTURE MANAGEMENT
Inherits from	RESOURCE
Related to	A CAPABILITY(ies) allows a firm to <i>provide</i> its VALUE PROPOSITION (0-n)
Set of	RESOURCE(s) (0-n)
Cardinality	1-n
Attributes	Inherited from RESOURCE (section 4.4.2)
References	(Wallin 2000) (Bagchi and Tulske 2000)

Table 4.13: eBMO Capability[18]

CAPABILITIES and RESOURCES are either assured in-house or can involve outside ACTORS to provide a specific business service.

Name of BM-Element	ACTOR
Definition	A business model ACTOR is an outside organization that is involved in the firm's business model and is integrated through a partnership.
Attributes	<i>NAME</i> {abc} <i>DESCRIPTION</i> {abc}

Table 4.14: eBMO Actor[18]

In order to create value, a firm needs RESOURCES. In this regard Grant[11] distinguishes between tangible and intangible assets and people-based skills. {TANGIBLE RESOURCES} include

plants, equipment and cash reserves. {INTANGIBLE RESOURCES} include patents, copyrights, reputation, brands and trade secrets. {HUMAN RESOURCES} are the people a firm needs in order to create value with tangible and intangible resources.

Name of BM-Element	RESOURCE
Definition	RESOURCES are inputs into the value-creation process. They are the source of the CAPABILITIES a firm needs in order to provide its VALUE PROPOSITIONs.
Element of	CAPABILITY (1-n)
Related to	A RESOURCE can be provided <i>by</i> an ACTOR (0-n) A RESOURCE <i>{fits}, {flows} to or is {shared}</i> by one or several ACTIVITYies (0-n)
Cardinality	0-n
Attributes	NAME {abc} DESCRIPTION {abc} RESOURCE TYPE {TANGIBLE, INTANGIBLE, HUMAN}
References	(Grant 1991) (Wernefelt 1984)

Table 4.15: eBMO Resource[18]

7. Partnership

A company's partner network outlines which parts of the activity configuration and which RESOURCES are distributed among the firm's partners. «The appearance of such networks of firms in which market and hierarchical governance mechanisms coexist has significantly enhanced the range of possible organizational arrangements for value creation. In general, partnerships and alliances have become an essential component in the strategies implemented by most companies»[18].

Name of BM-Element	PARTNERSHIP
Definition	A PARTNERSHIP is a voluntarily initiated cooperative agreement formed between two or more independent companies in order to carry out a project or specific activity jointly by coordinating the necessary CAPABILITYies, RESOURCES and ACTIVITYies.
Part of	INFRASTRUCTURE MANAGEMENT
Related to	Concerns a VALUE CONFIGURATION (1-n) PARTNERSHIPS are developed to provide a VALUE PROPOSITION (1-n)
Set of	AGREEMENT(s)
Cardinality	0-n
Attributes	Inherited from AGREEMENT (section 4.4.7)
References	(Child and Faulkner 1998) (Dussauge and Garrette 1999) (Brandenburger and Nalebuff 1996) (Tapscott, Ticoll et al. 2000)

Table 4.16: eBMO Partnership[18]

«Because partnerships are voluntarily initiated cooperative arrangement, they are based on a commonly negotiated terms and conditions. This is the reason why Alexander Osterwalder introduces the AGREEMENT sub-element. It aims at explaining the motivation, function and conditions of an arrangement between business partners. Each PARTNERSHIP can use one or more AGREEMENTs »[18] .

Name of BM-Element	AGREEMENT
Definition	An AGREEMENT specifies the function and the terms and conditions of a partnership with an ACTOR
Element of	PARTNERSHIP
Related to	An AGREEMENT is always made <i>with</i> an ACTOR (1-n)
Cardinality	0-n
Attributes	NAME {abc} DESCRIPTION {abc} REASONING {OPTIMIZATION AND ECONOMIES OF SCALE, REDUCTION OF RISK AND UNCERTAINTY, ACQUISITION OF RESOURCES} STRATEGIC IMPORTANC {0-5} DEGREE OF COMPETITION {0-5} DEGREE OF INTEGRATION {0-5} SUBSTITUTABILITY {0-5}

Table 4.17: eBMO Agreement[18]

The *reasoning* attribute describes the firm's motivation to conclude a partner agreement. Osterwalder distinguished between three rough categories of motivation described below :

- «{OPTIMIZATION AND ECONOMIES OF SCALE} : By entering these agreements a firm can profit of its partner's or supplier's economies of scale or of its specialized knowledge, which it could not achieve on its own.
- {REDUCTION OF RISK AND UNCERTAINTY} : In a competitive environment that is characterized by uncertainty and high risk, partnerships can increase anticipation and thus reduce the risk (Mariti and Smiley 1983).
- {ACQUISITION OF RESOURCES} : This kind of partnerships is usually used to conquer foreign markets but it can also be used for knowledge acquisition, data, or customer access.

Strategic importance means how relevant a relationship is to the business success of a company. The more strategic a partnership the higher the score, which goes from zero to five.

Degree of competition indicates if the partner with whom the firm has signed an AGREEMENT is a competitor or not.

Degree of integration measures how closely two ACTORS are linked together. This can differ from one type of partnership and agreement to another. The loosest link between two ACTORS is through independent third-party marketplaces (e.g. stock markets) and the closest link are tightly integrated supply chains (e.g. traditional EDI) »[18].

Financial aspects

FINANCIAL ASPECTS is the last block of Alexander Osterwalder's framework. This block is the outcome of the rest of the business model's configuration. FINANCIAL ASPECTS is composed of the company's REVENUE MODEL and its COST STRUCTURE. Together they determine the firm's profit- or loss-making logic and therefore its ability to survive in competition.

8. Revenue model

This element measures «the ability of a firm to translate the value it offers its customers into money and incoming revenue streams»[18].

Name of BM-Element	REVENUE MODEL
Definition	The REVENUE MODEL describes the way company makes money. It can be composed of one or several REVENUE STREAM AND PRICING elements.
Part of	FINANCIAL ASPECTS
Related to	A REVENUE MODEL is <i>built on</i> and depends of the firm's VALUE PROPOSITIONs (1-n).
Set of	REVENUE STREAM AND PRICING(s) (0-n)
Cardinality	1-n
Attributes	Inherited from REVENUE STREAM & PRICING (section 4.5.2)

Table 4.18: eBMO Revenue model[18]

«The revenue streams a company can capture from its value creating activities are pivotal to its long-term survival. The great variety of pricing mechanisms enabled by ICT helps companies to improve revenue maximization. Particularly the Internet has had an important impact on pricing and has created a whole new range of pricing mechanisms. In general the Internet has had a heavy impact on pricing, as it has become much easier to compare prices»[18].

Name of BM-Element	REVENUE STREAM AND PRICING
Definition	The REVENUE STREAM AND PRICING element describes an incoming money stream from the value offered by the company. Furthermore it defines what mechanism is used to determine the price of this value offered. The element is characterized by its attributes STREAM TYPE and PRICING METHOD.
Element of	REVENUE MODEL
Related to	A REVENUE STREAM AND PRICING is for one or several OFFERINGS (1-n) Every channel LINK can has one or several REVENUE STREAM AND PRICING elements (1-n)
Cardinality	0-n
Attributes	NAME {abc} DESCRIPTION {abc} STREAM TYPE {SELLING, LENDING, LICENCING, TRANSACTION CUT, ADVERTISING} PERCENTAGE {123} PRICING METHOD {FIXED, DIFFERENTIAL, MARKET}
References	(Klein and Loebbecke 2000) (Pitt, Berthon et al. 1999)

Table 4.19: eBMO Revenue stream and pricing[18]

The *stream type* describes the type of economic activity with which a company generates a revenue stream. The value can be one of the five described below :

- «{SELLING} : The precise definition given by Osterwalder is «the activity of giving away certain aspects of ownership of a good or service in exchange for money».

- {LENDING} : Lending is the activity of giving something to someone for a period of time, expecting it to be given back.
- {LICENCING} : Licencing is the activity of giving someone official permission to do or have something. Contrary to lending, licencing can theoretically generate unlimited income, except in the case of exclusive licences.
- {TRANSACTION CUT} : A business transaction is doing and completing a business activity between two or several organizations where goods or services are exchanged for money. A transaction cut or commission is the fee that is paid to the party that has organized, facilitated, or performed the deal.
- {ADVERTISING} : Advertising is the activity of telling about or praising something publicly, as through a media so as to influence the choice, opinion or behavior of those addressed»[18].

The *percentage* attribute simply measures how much a specific revenue stream contributes to the total REVENUE MODEL.

Osterwalder differentiates three main categories of pricing mechanisms :

- «{FIXED PRICING} mechanisms produce prices that do not differentiate in function of customer characteristics, are not volume dependant and are not based on real-time market conditions.
- {DIFFERENTIAL PRICING} refers to pricing mechanisms that produce prices that are either based on customer or product characteristics, are volume dependant, or are linked to customer preferences, but not based on real-time market conditions.
- {MARKET PRICING (DYNAMIC)} stands for pricing mechanisms that produce prices based on real-time market conditions (e.g. auctions, stock markets)»[18].

9. Cost structure

The COST STRUCTURE is the ninth and last element of the business model ontology and «measures all the costs the firm incurs in order to create, market and deliver value to its customers. It sets a price tag on all the resources, assets, activities and partner network relationships and exchanges that cost the company money»[18].

Name of BM-Element	COST STRUCTURE
Definition	The COST element measures all monetary costs incurred by the company.
Part of	FINANCIAL ASPECTS
Inherits from	ACCOUNT
Set of	ACCOUNT(s) (0-n)
Cardinality	1-n
Attributes	Inherited from ACCOUNT (section 4.5.4)
References	(Maitre and Aladjidi 1999)

Table 4.20: eBMO COST STRUCTURE[18]

«An ACCOUNT simply defines a specific type of expenditures. This can be a detailed account according to accountancy theory or an aggregate of expenditures. The *percentage* attribute simply measures how much a specific ACCOUNT contributes to the total COST STRUCTURE»[18].

Name of BM-Element	ACCOUNT
Definition	An ACCOUNT is a registry of pecuniary transactions (expenditure) of a certain category
Element of	COST
Cardinality	1-n
Attributes	NAME {abc} DESCRIPTION {abc} SUM {123} PERCENTAGE {123}

Table 4.21: eBMO Account[18]

Overview of the business model ontology

Figure 4.12, designed by Osterwalder[18], gives an overview of the business model ontology and how the specific elements relate to each other.

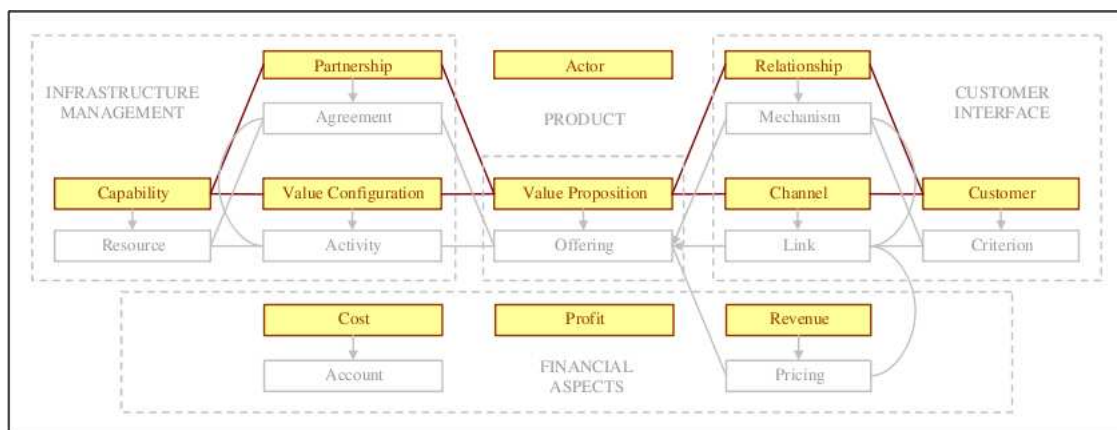


Figure 4.12: Links between the eBMO elements[18]

Figure 4.13 shows a meta-model oriented representation of this overview. It is strongly based on the description of each concept presented in the previous sections of the nine elements of the Business Model Ontology. The goal was to get a more precise model of eBMO with all attributes of the elements composing the ontology.

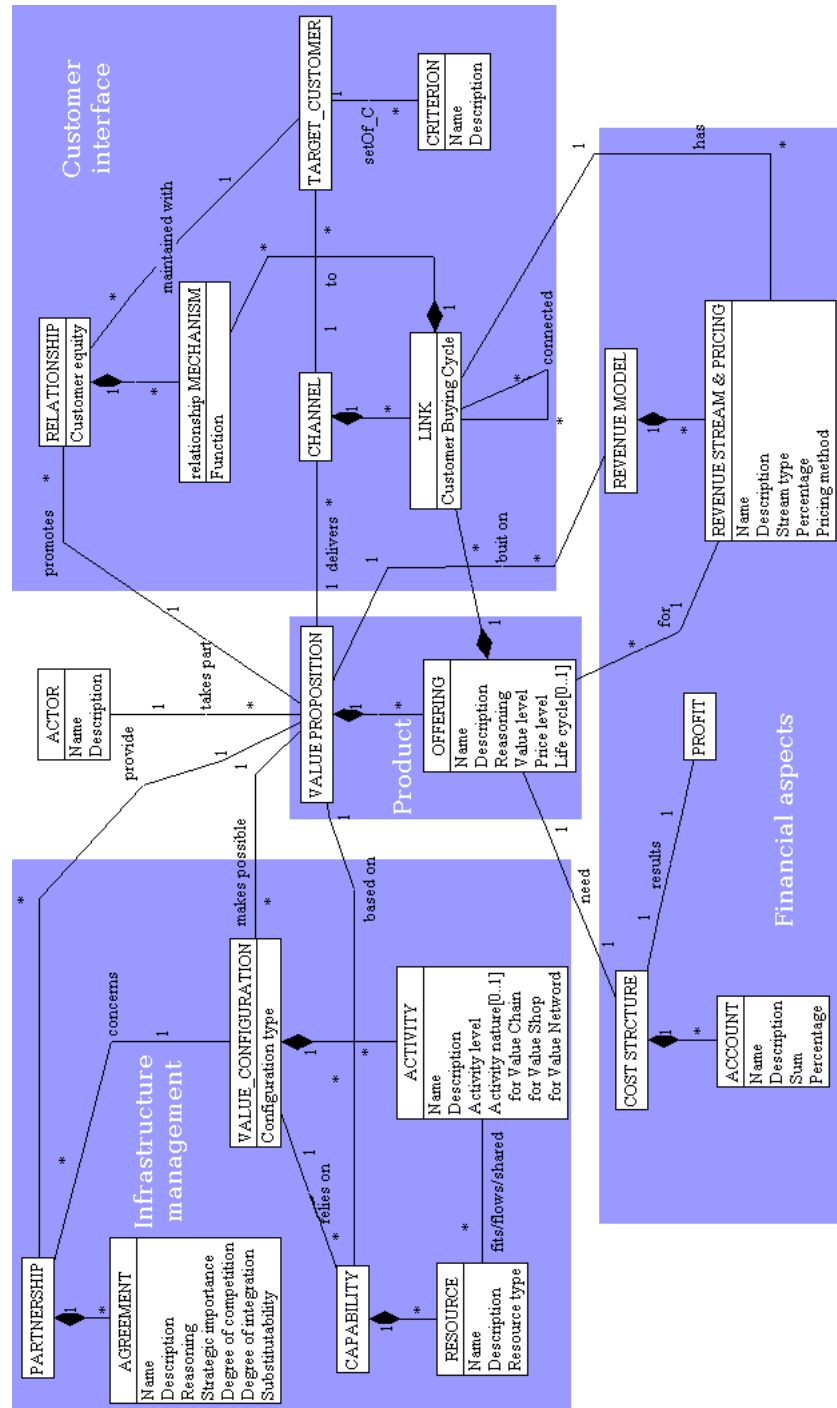


Figure 4.13: Meta-model of the eBusiness Model Ontology

4.2.2 Conclusion

The eBusiness Model Ontology proposed by Alexander Osterwalder is a rigorous definition of the e-business issues and their interdependencies in a company's business model. Building on existing knowledge of the domain, the ontology describes the terms, elements, attributes and relationships of the business model concept.

Following the opinion of Osterwalder, we could say that, «In regard to comparable concepts the business model ontology represents a synthesis of the overall literature and a step forward in the rigor of conceptualization»[18].

In this chapter, we explained the main ideas of eBMO in order to make it easier and more understandable for executives or people working in SMEs.

4.3 Economical analysis : e^3 -value

4.3.1 Introduction

To analyze and validate the economical aspects of a Business Model, we can use e^3 -value, a value-based modeling approach. This was created by Jaap Gordijn and Hans Ackermans from the «Vrije Universiteit Amsterdam». We adapted this introduction from the website of e^3 -value[36] by Jaap Gordijn.

With e^3 -value, we can explore new innovative e-business ideas and check if it can be profitable and useful for the consumer in a multi-actor environment. The primary goal is to find, represent, analyze and evaluate an e-business value proposition. The approach insists on the modeling and the explanation of how the actors create, distribute, and consume objects of economic value. To have a better understanding between the business and the IT department, e^3 -value uses a terminology from business sciences and an approach from information sciences.

The e^3 -value methodology is lightweight, conceptual, semi-formal, graphical, multi-view point and oriented on scenario's. In addition, e^3 -value includes a tool to interact with a spreadsheet to check the costs and incomes of the project. It enables to do a cost analysis easily with a spreadsheet application like Microsoft Office Excel.

You can see below a very simple example of an e^3 -value model which presents an exchange between the shopper, the store and the manufacturer. The shopper gives money in exchange of a good to the store. The store do the same with the manufacturer of the product and the store add a margin to the price in order to be sustainable.

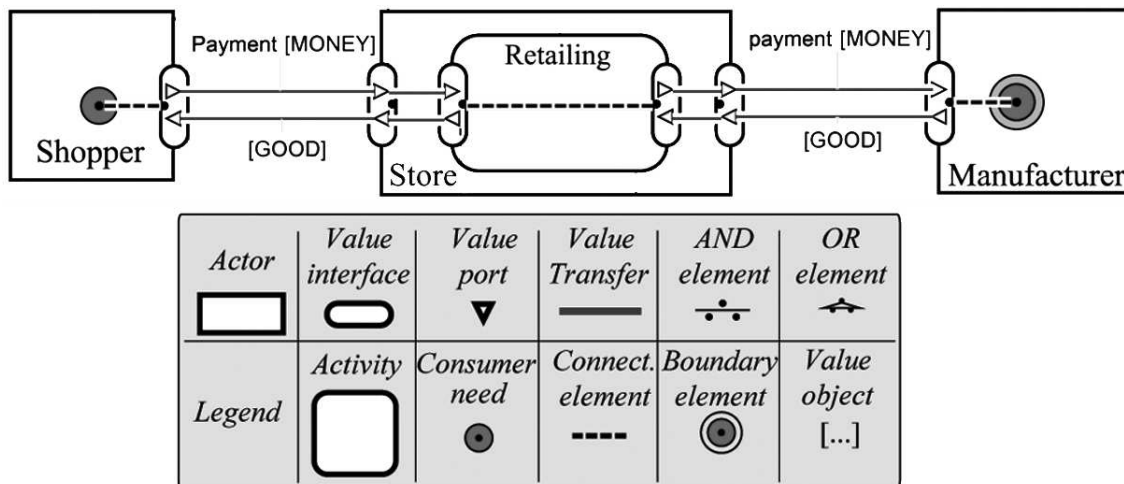


Figure 4.14: Basic e^3 -value example[21]

In this section, we present a meta-model of this method and the Network Value Constellation (NVC) concept.

4.3.2 Meta-model and constructs of e^3 -value

We present below the meta-model of e^3 -value with the global and detailed actor viewpoint. The additional elements of the detailed actor viewpoint are in bold.

The global actor viewpoint gives a general view of the project with the actors, the objects of economical value, the exchanges,... It is a good view for all decision makers because it removes some constructs and complexity. The detailed actor viewpoint adds elements about the partnerships, the constellations of actors and some requirements expressions.

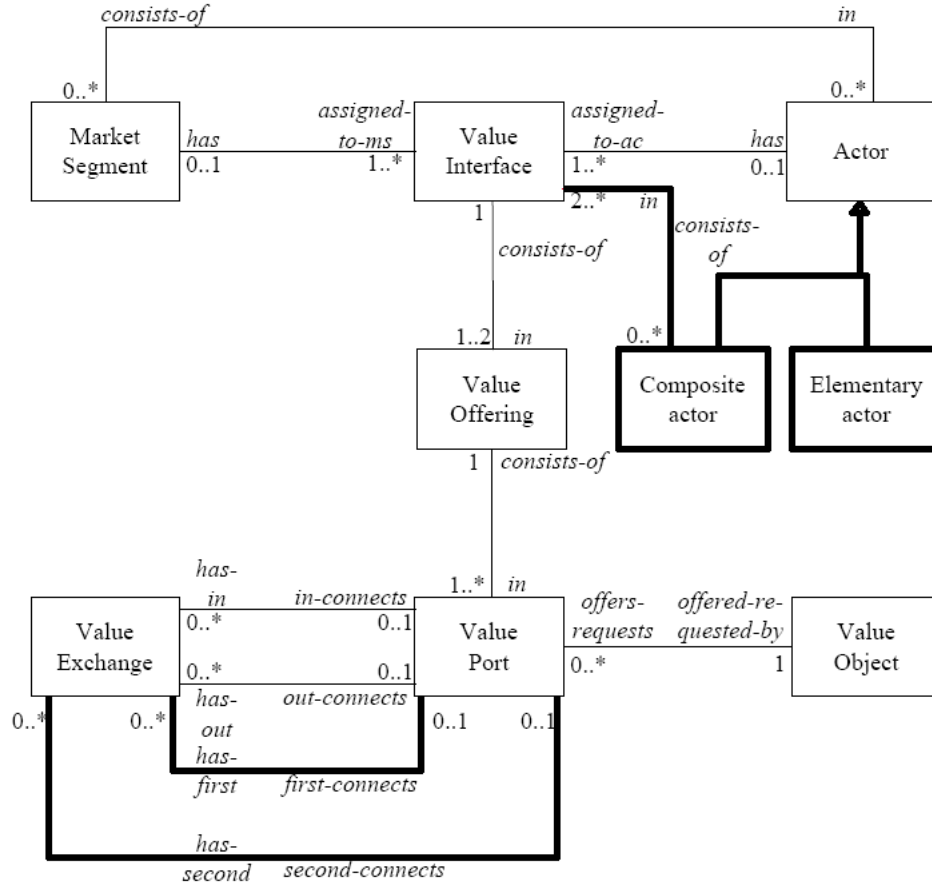


Figure 4.15: e^3 -value meta-model[9]

In the model, we can find the following elements [9] :

- **«Actor»** : An actor is perceived by his environment as an economically independent (and often also legal) entity. Enterprises and end-consumers are examples of actors. A profit and loss responsible business unit, which can be seen as economically independent is an actor, although such a unit doesn't need be a legal entity.
- **Value Object** : Actors exchange value objects. A value object is a service, a product, or even an experience, which is of economic value for at least one of the actors involved in a value model. Actors may value an object differently and subjectively, according to their own valuation preferences.
- **Value Port** : An actor uses a value port to provide or request value objects to or from his/her environment, consisting of other actors. Thus, a value port is used to interconnect actors so that they are able to exchange value objects. Such a value object flowing into or out an actor denotes a change of ownership, or a change in rights.
- **Value Offering** : A value offering models what an actor offers to (an out-going offering) or requests from (an in-going offering) his environment, and closely relates to the value

interface concept. A value interface models an offering of an actor to his environment, and the offering such an actor requests in return from his environment. An offering is a set of equally directed value ports exchanging value objects, and implies that all ports in that offering should exchange value objects, or none at all.

- **Value Interface** : Actors have one or more value interfaces. In its simplest form, a value interface consists of one offering, but in many cases, a value interface groups one in-going and one out-going value offering. It shows then the mechanism of economic reciprocity. Economic reciprocity refers to rational acting actors. We suppose that actors are only willing to offer objects to someone else, if they receive adequate compensation (i.e. other value object(s) in an in-going offering) in return. So, with the value interface, we can model that an actor is willing to something of value to his environment but requests something in return, whereas a value offering models that objects can only requested or delivered in combination.
- **Value Exchange** : A value exchange is used to connect two value ports with each other. It represents one or more potential trades of value object instances between value ports. As such, it is a prototype for actual trades between actors. It shows which actors are willing to exchange value object instances with each other. So, it does not model actual exchanges of value object instances, which we call value exchange instances.
- **Value Interface** : A value interface prescribes the value exchanges that should occur, seen from the perspective of an actor the value interface is connected to, because all ports in a value interface should exchange objects, or none at all. Sometimes, it is convenient to have a concept that aggregates all value exchanges, which define the value exchange instances that must occur as consequence of how value exchanges are connected, via value interfaces to actors. We call this concept a value transaction. In its simplest form, a transaction is between two actors. However, a transaction can also be between more than two actors. We call such a transaction a multi-party transaction.
- **Market segment** : In marketing literature, a market segment is defined as a concept that breaks a market (consisting of actors) into segments that share common properties. We employ the notion of market segment to show that a number of actors assign economic value to objects equally. This construct is often used to model that there is a large group of end-consumers who value objects equally. We realize that in practice no actor will value objects exactly the same, but supposing an equal valuation for some actor groups is a simplification needed to arrive at comprehensible value models»[9].

In the detailed actor viewpoint, we can find other definitions of constructions :

- **«Actor revisited** : The concept of actor is revisited and specialized in the two next concepts :
 - *Composite actor* A composite actor groups value interfaces of other actors. Also, a composite actor has its own value interfaces to its environment. These composite actors value interfaces allow us to (1) abstract away from the composites internals, or (2) to show a common value interface from actors who decide to present themselves as a virtual enterprise.
 - *Elementary actor* An elementary actor does not contain value interfaces of other actors. Such an actor is the lowest decomposition level that can be reached from an actor perspective.
- **Value exchange revisited** : We have introduced the value exchange concept earlier to relate ports of actors exchanging objects. These connected ports have opposite directions.

The value exchange construct is also used to relate value ports of a composite actor to value ports of actors being part of the composite. In this case, connected ports have equal directions. An object offered via an out-port of a composite actor still has to be offered via an out-port of one of the actors in the composite. Also an object requested via a composite actors in-port must be requested by an in-port of one of the actors it contains»[9].

4.3.3 Network Value Constellation

Nowadays, with a global connected society thanks to the Internet, organizations cooperate more and more and form networks. Tapscott, Ticoll and Lowy [28] started to study these organizations and launched the term «Network Value Constellation» (NVC) to describe companies which cooperate to provide new services with added value and satisfy customer needs. The e^3 -value notation is particularly adapted to describe these complex organizations in order to understand deeply the stakes in and around the organizations environment. It is possible to explain the increase of complexity for two reasons based on [21] by Vincent Pijpers and Jaap Gordijn. Firstly, the organizations are more complex and secondly, the collaborations are more dynamic and their number grew fast.

The organizations interested in a NVC have all to be profitable or at least profitable at middle-term to guarantee the continuation of the collaboration. That's why it is important that all participants have to understand deeply the constellation and analyze their potential profitability before going in a complex, detailed and time-consuming process design that implements the NVC. A value model of the project is a good way to create a common understanding and choose the best solution among the different alternatives.

4.3.4 Conclusion

In this chapter, we made a summary of the e^3 -value notation and all what is possible with it. e^3 -value is well designed to analyze deeply the economical flows between a company and all his partners, allies, customers, ... It gives an interesting scheme of how to create value in the current business model and the adaptations possible to improve it in the future.

Part II

Proposal of a methodology for business models creation

Chapter 5

Practical roadmap

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5.1 Introduction

This part of our thesis describes precisely how we want to implement the different theoretical elements that we mentioned in the state of the art.

Our methodology is based on two main distinctions. Firstly, we make a differentiation between the AS IS and the TO BE situation. It permits to insist on the future organization and its changes. It shows also the reasons to change the organization. Secondly, we differentiate a Light and a Full version of the analysis. With a Light version, we think that the user would be very interested in analyzing firstly the organization as a whole with only the main information without details in order to get a first idea of the process, the actors and the goals to achieve.

In a second time, the details will be analyzed through a Full analysis.

Our methodology is based on the eBMO analysis. Through different analysis and questionnaires for the user, we cover most aspects of a business model developed by A. Osterwalder in his thesis[18]. He precises in his conclusion that «the business model ontology represents a synthesis of the overall literature and a step forward in the rigor of conceptualization»[18]. In our opinion, eBMO can then be at the center of our roadmap because it enables to summary a lot of information about the company and how it works. The disadvantage of this method is that there is nothing graphical.

There are two possible ways in the tool : classical analysis and full analysis. In the classical analysis, the methodology begins with a Light AS IS analysis to evaluate and summarize the current situation of the company. Secondly, we analyze the transitional goals that justify a new business model for an existing organization. Thirdly, we continue to the Light TO BE analysis which gives a first overview of the future business model. It can be helpful to compare several business models in order to choose the best one for the future of the organization. Lastly, the user can analyze deeply the future business model in the Full TO BE analysis. The second way (full analysis) adds a Full AS IS analysis just after the Light AS IS analysis of the classical analysis. It permits to analyze deeply the current situation of the organization before to think about a new business model for the future. Most of case, the classical analysis (in bold in the Figure 5.1) seems to be sufficient and more appropriate since it is usually more interesting to analyze deeper the future of an organization than its current situation.

When the Full TO BE analysis of the organization is analyzed with the tool, it could become later the AS IS of a new analysis. The Full TO BE analysis becomes the Full AS IS analysis and a new TO BE organization can be thought by the user depending on the environment and opportunities in it.

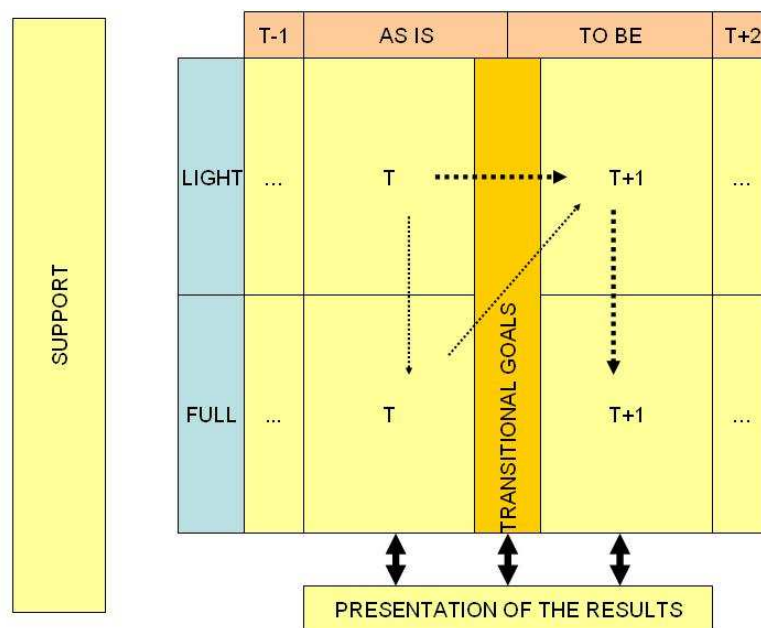


Figure 5.1: Global view of the roadmap

5.2 Light AS IS analysis

The objectives of the Light AS IS analysis will be to elicitate the goals, the actors and the process of an organization. Since it is the first step of the roadmap, the input data will only be the answers of the user. The information given will be classified in a way which will provide a systematization of the process and additional value for the user.

As it is represented on the figure below, the Light AS IS analysis will begin with the actors classification tree in order to identify the actors in and around the company. After that, we will instantiate the Value Chain of the organization so that we can identify the resources needed for each activity. After that, we instantiate the 5 forces model of Porter to elicitate the Opportunities and Threats. Finally, we analyze the mission statement of the organization and we work on a SWOT analysis.

In the Light AS IS analysis, we help the executive to produce a first report on his organization and his environment. There are two versions of this part depending on the existence of the organization or not. If the organization exists, we do all steps. On the contrary, if the organization is only a project in the mind of the executive, he will have to do only three steps because we will analyze only the external aspects of the company. By external aspects, we mean the analysis of the future environment of the company and the opportunities or threats in it. The two aspects are covered in the figures below.

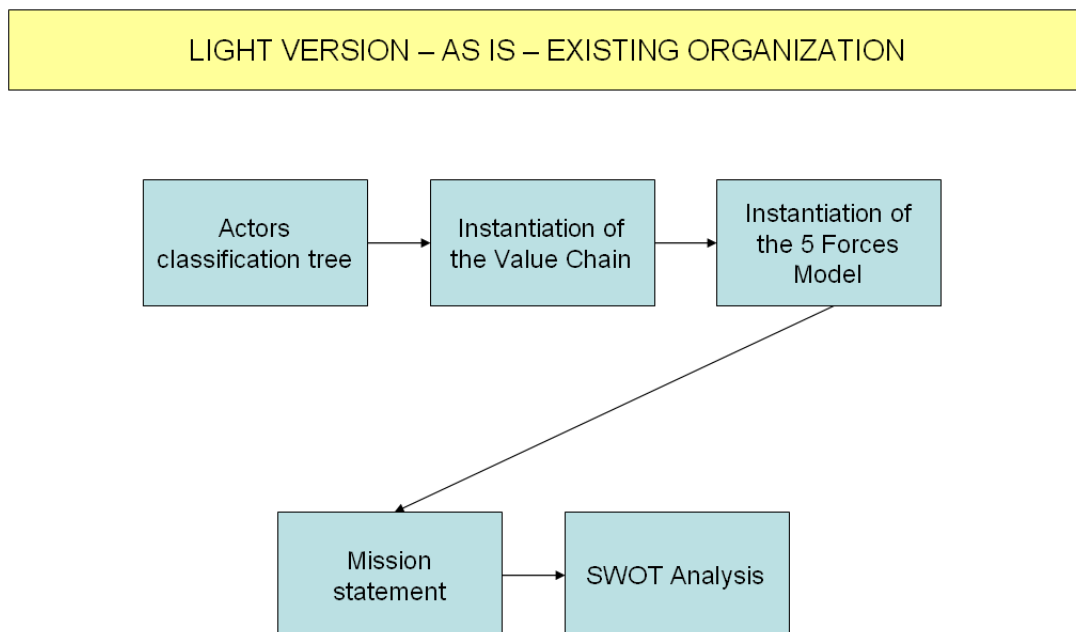


Figure 5.2: Light model for the AS IS version of an existing organization

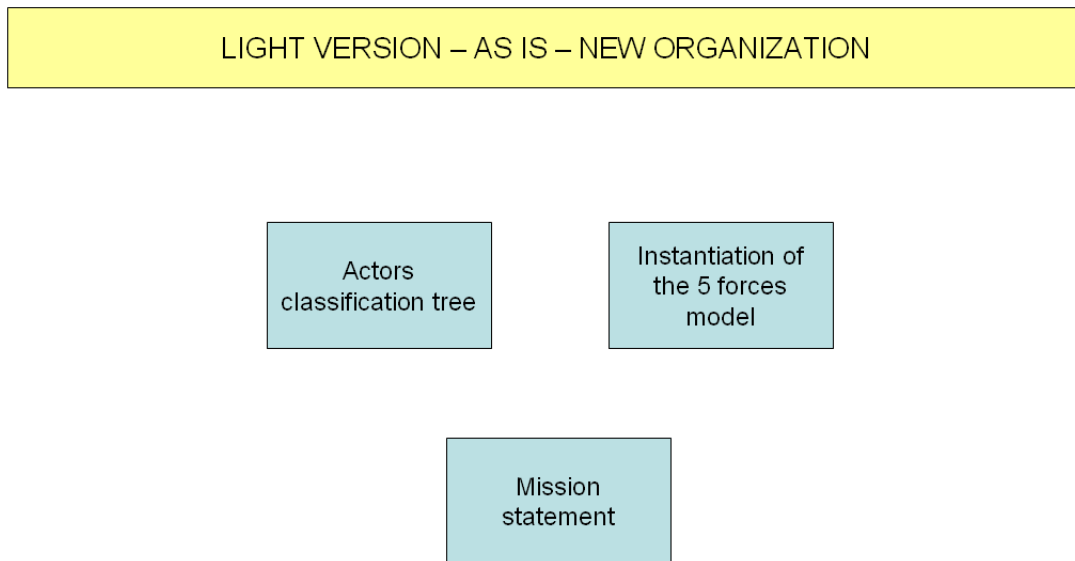


Figure 5.3: Light model for the AS IS version of a new organization

We will cover all aspects of the Light AS IS analysis in the order that we recommend. Another way to fill in this analysis is possible but, in this case, some automations and helps will be impossible.

At the beginning of each following section, we explain what are the differences between an existing and a new organization.

5.2.1 Actors classification tree

In this section, there are few differences between an existing and a new organization. In the second case, the user will have to imagine the *future actors* of the organization. Except that, the internal actors are less important than in an existing organization since they are not yet involved in the future project.

The classification of actors is an important step in designing a business model. In fact, the main point of a business is the relation and the exchange (of money and goods or services but also of information for example) between the different stakeholders, the customers and the other people or organizations which are involved in the business. Since the main part of a business is the people and companies (and especially the exchanges between them), it seems very interesting to focus on a clear identification and classification of the different actors who are involved. The first classification which can be done is between the internal actors of the organization, the external actors and the customers. The customers could be in the same group of the external actors but, without customers, no company could exist. That's the reason why we think it is preferable to do a special group for the customers.

Before using any model to represent the goals or the functioning of a company, we think it could be very useful to identify all the *actors* (stakeholders, customers, suppliers, ...) and classify them. This classification would be useful for all the further modeling and would enable the executives or entrepreneurs to clarify the situation.

The classification of the external actors and the customers can be improved by new sub-classifications with firstly, for the external actors, the classification of Weill & Vitale between the Ally and Suppliers and secondly, for the customers, the eBMO segmentation in *Target Customer segments*.

Some actors are neither Ally nor Suppliers. We propose to add a new category *Environmental Actors* which can be useful for the administration, the competitors and a lot of other people or organizations like, for example, the newspapers ... This classification will be very useful to clearly identify all the people and organizations involved in the business and, by doing so, to make easier the design of the business models since a lot of modeling methods that are commonly used and that we present need the identification of these actors.

To make this classification, we propose to follow the model below.

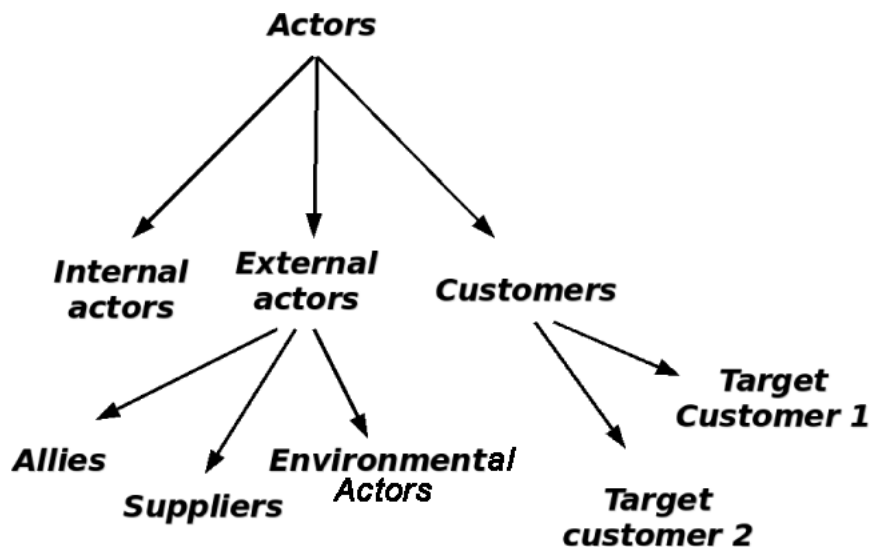


Figure 5.4: Classification of actors

The first classification consists of separate actors in three groups :

- Internal actors : The internal actors are all the stakeholders of the company or association like the employees, the shareholders, the managers, ...
- External actors
 - Suppliers : The manufacturer, the distributor or the wholesaler which sell goods or services to enable the business to work effectively.
 - Allies : An ally is more than a supplier because the company can't work without its allies. They improve the value proposition. Usually, the allies are some suppliers more important than the others and can be seen as partners. Although this definition, the decision to choose between *Ally* or *Supplier* is sometimes quite difficult.
 - Environmental actors : These actors are all the external actors who are not a customer, a supplier or an ally. For example, the administrations, the competitors, ... are included in this category.
- Customers : The customers can be divided in several group called *Target customer segment* by Weill & Vitale[32].

- Target customer 1
- Target customer 2
- ...

5.2.2 Instantiation of the Value Chain

This section is only used in the case of an existing organization.

The main step of the instantiation of the Value Chain will be the translation of the primary and support activities of Porter[25] in concrete activities made by the organization. This step will also help the user to elicitate the Strengths and Weaknesses. For example, which activities are done (or which aspects of the organization exist) to improve the logistic, the marketing and sales,...

To elicitate the activities and the resources associated, we propose to fill, through the tool, the tabular below where each activity will be on the left.

Activity of the VC	Name	Description	Type
Example	My name	My description	Human, Tangible or Intangible
Marketing on TV	Human Resources	Employees with oral skills	Human
...

Table 5.1: Tabular of the resources for each activity of the Value Chain

To improve the completeness of this analysis, we provide questions that could help the user. To provide this list of questions, we were inspired by the book of Michael Porter[25]. In spite of the definitions of each element of the Value Chain, it is not always easy to catch the signification of what to fill in for the activities. The questions cover different aspects of the activities and are helpful to launch a thinking process in the mind of the executive. This list is not exhaustive because it wouldn't be possible since there are too much different possible cases.

Firm Infrastructure

- Do you have enough resources and capital to be sustainable ?
- Are you at the right place to develop your activity ?

Human Resource Management

- Do you have the right people to do the work ?
- Do you have any special philosophy or values which contribute to the organization ?
- Do you have a good communication between the people of your company ?

Technology Development

- Does your technology help you to spare some time or to be more efficient ?

Inbound Logistics

- Do you have any contract with suppliers ?

Operations

- Which are the main advantages and disadvantages in your process of manufacturing or of service?
- Do you have good quality process and procedures, any patent about the process of production ?

Outbound Logistics

- Are you in the right place to sell your products or services ?
- Do you have a good access to distribution channels ?

Marketing & Sales

- Which are the main advantages and disadvantages of your product or service ?
- Do you have a good quality and/or a good price ?
- Do you know well your customers (who they are, their goals, ...) ?

Services

- Do you have an efficient after-sales service ?
- Do you offer warranty to your customers ?

5.2.3 Instantiation of the 5 Forces Model

There are no main differences between a new or an existing organization except that the user will have to imagine the future situation in the case of a new one.

In the same way that we used the Value Chain, we can use the 5 Forces Model to elicitate the opportunities and threats of the organization in his environment.

The main step of this analysis is the elicitation of these 5 forces which could influence the activities made by the organization. Firstly, the user will try to find forces around his organization. We provide questions below to help him in this task. Secondly, for each force, we will ask the link with one actor and the relation with this actor to catch an opportunity or decrease a threat. The website will provide some help to the user for all parts of the analysis (from the state of the art). The table below shows the first part of the analysis. The second part will take each force and try to link it with an actor defined in the Actors classification tree (first step of the Light AS IS analysis).

	Force 1	Force 2	Force n
New entrants			
Bargaining power of buyers			
Substitute products or services			
Bargaining power of suppliers			
Rivalry among competitors			
Relation with the government			

It is not easy to find all elements from scratch and that's why we propose below a list of questions which could help the user in his analysis. As for the *instantiation of the value chain* part, we used the book of Michael Porter to produce these questions[25]. They are not exhaustive but only concentrates on the main aspects for each point.

Threat of new entrants

- Is there any barrier to come in your business ?
- Do you have an exclusive access to certain resources ?

Bargaining power of buyers

- Can your customer easily go to a competitor ?
- Would it be possible for the company to continue to be sustainable if the demand would strongly decrease ?

Threat of substitute products or services

- Is there any substitute to your product or service and what's your position comparing to this(these) one(s) ?

Bargaining power of suppliers

- Do you have any vital contracts, partners or suppliers ?

Rivalry among competitors

- Can your competitors grow faster than you do ?
- Do you know the vulnerabilities or strength of your competitors ?

Relation with the government

- Are there any political effects on your company ?
- Is there a good public infrastructure ?

5.2.4 Mission statement

In the case of an existing organization, if the mission statement was already defined it would then be a refinement of the previous one. In a new organization, the user will have to think about it *from scratch*.

Based on the instantiations of the Value Chain and the 5 Forces Model, the user can define (or refine) his mission statement. The mission statement has the role to keep members and users aware of the organization's purpose. «An effective mission statement must resonate with the people working in and for the organization, as well as with the different constituencies that the organization hopes to affect. It must express the organization's purpose in a way that inspires commitment, innovation, and courage» [26]. So in the mission statement, we can find the following aspects (adapted from [42] and [26]):

- Purpose of the organization : What are the opportunities or needs that we exist to address ?
- Business of the organization : What are we doing to address these needs ?

- Values of the organization : What principles or beliefs guide our work ?

Some organizations use it as an advertising slogan. We have for example :

- **Microsoft** : «*To enable people and businesses throughout the world to realize their full potential.*»[39]
- **Google** : «*Organize the world's information and make it universally accessible and useful.*»[37]

We have to contrast the Mission Statement concept with the Vision Statement one. Actually, the Mission Statement insists on present and the current situation of the organization. The Vision Statement concentrates on the future of the organization and what it wants to become in order to have clear decision criteria.

5.2.5 SWOT analysis

This analysis has to be done on an existing organization. It then won't be used in the case of a new organization.

The last part of the Light AS IS analysis is a well-known SWOT analysis which gives a good overview of the current situation in the organization. It will be helpful to evaluate what is good or not in the organization and what could be improved in the future with a new business model.

In the tool, we ask elements for all Strengths, Weaknesses, Opportunities and Threats. We propose also to define a level of importance on each point of the SWOT. It will permit to classify the different points and insists more on what is really strategical and what is only a detail. It avoids a common mistake to add a lot of points in the Opportunities and Strengths of the organization so that we have the impression that the organization has less problem than the reality. We propose three levels of importance :

- *Very important* for points that couldn't be avoided in the current and future strategy of the organization.
- *Quite important* for points that are interesting and that could influence the strategy of the organization.
- *Not important* for points that will not directly influence the strategy of the organization but are nevertheless interesting to mention.

The elements of the SWOT analysis are directly coming from elements of the Value Chain and the 5 Forces model. M. Porter (in [25]) developed these two theories to facilitate the SWOT analysis and we think that thanks to the instantiation of the Value Chain and the 5 Forces model, the executive will do it with less problems. The external elements (opportunities and threats) are covered by the 5 Forces Model and the internal elements (strengths and weaknesses) are covered by the elements of the Value Chain.

5.3 Transitional goals

This step is only available for existing organization because, in new organization, there is no transition from one business model to another.

In this part, the user will think about his rationales and goals to go from one business model (as in the AS IS) to another (that will be defined in the Light and Full TO BE analysis). These goals are strategic and help at the design of the new organization strategy that leads to change it. It corresponds to the definition of a sustainable strategy by the user defined in the state of the art.

In the Light AS IS analysis, the executive completed the SWOT analysis of his organization. It gives us an interesting summary of the things which are right at the moment. Going from all points of the SWOT analysis, we ask the user the elements that he wants to improve or change in the future organization. Normally he should have something for each weakness or threat so that he could decrease the importance of it. The executive could also have points to increase his Strengths and includes the Opportunities in his future organization.

As in the SWOT analysis, we associate a level of importance at each transitional goal. We use the same scale and have the following meaning for each level :

- *Very important* : element which is primary in the will to change of business model. It can decrease significantly a Threat or a Weakness, improve a Strength or get an Opportunity.
- *Quite important* : element which contributes to a part of the organization strategy but is not significantly in itself.
- *Not important* : minor element in the organization strategy.

In the definition of the transitional goals, the executive explains which elements he wants to improve or develop in the future organization in order to be more competitive. This future organization will be described in the next sections of this thesis about the Light and the Full TO BE analysis.

5.4 Light TO BE analysis

In the Light TO BE analysis, we use nearly the same steps defined in the Light AS IS analysis. We use the data given by the user in the Light AS IS analysis to simplify and accelerate the creation of this analysis. The user has to do the *delta* between the AS IS and the TO BE. We justify the same framework and inputs based on the AS IS analysis because there are elements that are the same in both models. The user will have the choice to copy or not the Light AS IS analysis before doing the Light TO BE analysis of his organization.

In the Light TO BE analysis, we do not introduce a distinction between an existing organization and a project. In both cases, we have to analyze all aspects in order to have a good global view of the future project. It allows to do several Light TO BE analysis and choose the best one after a comparison. The comparison should have as criterions, the elements defined in the SWOT analysis. The best Light TO BE must decrease the maximum *very important* threats or weaknesses. It should also reinforce the strengths of the organization and catch up the most important opportunities of the current organization.

Comparing to the Light AS IS analysis, we removed the SWOT analysis part because it is hard to define strengths or weaknesses of a project which is not yet implemented and because we already analyzed the opportunities that the new business model will meet in the transitional goals and the threats that will be removed or decreased.

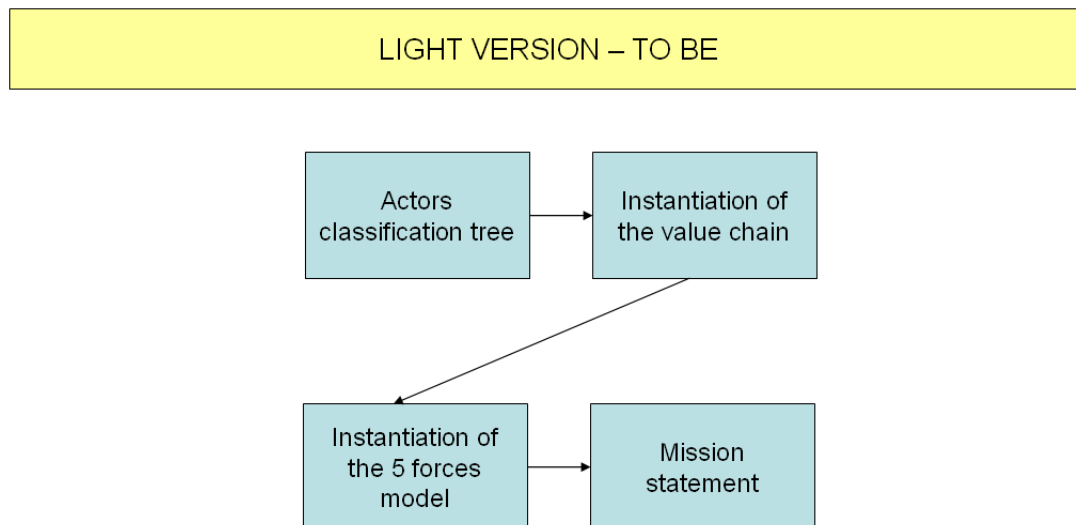


Figure 5.5: Light model for the TO BE version of the organization

In the figure 5.5, we can see the different activities of the Light TO BE analysis. Going from the Actors classification tree, the user will instantiate his value chain and link it with resources and actors defined in the first step. After that, he will produce the 5 Forces Model for his organization and analyze the relationships between these forces and the external actors. Lastly, the user will analyze the Mission statement which defines his way in the future business model.

5.5 Full TO BE analysis

The Full TO BE analysis is the most important of the roadmap. It will describe precisely all aspects of the new business model. It will take some time for the user but it will help him to refine and improve his business model in order that he will be profitable as fast as possible. The Full TO BE analysis will take informations from the Light TO BE analysis to make links with it.

In the Full TO BE analysis, we develop the following points :

- Analysis of the target customers
- Analysis of the partnerships
- Identification of ABMs corresponding to the project
- Definition of the Key Success Factors and goals models for ABMs corresponding to the project
- Analysis and refinement of the value proposition
- Introduction to the economical flows analysis thanks to e³value

The scheme below summarizes the different steps of the Full TO BE analysis.

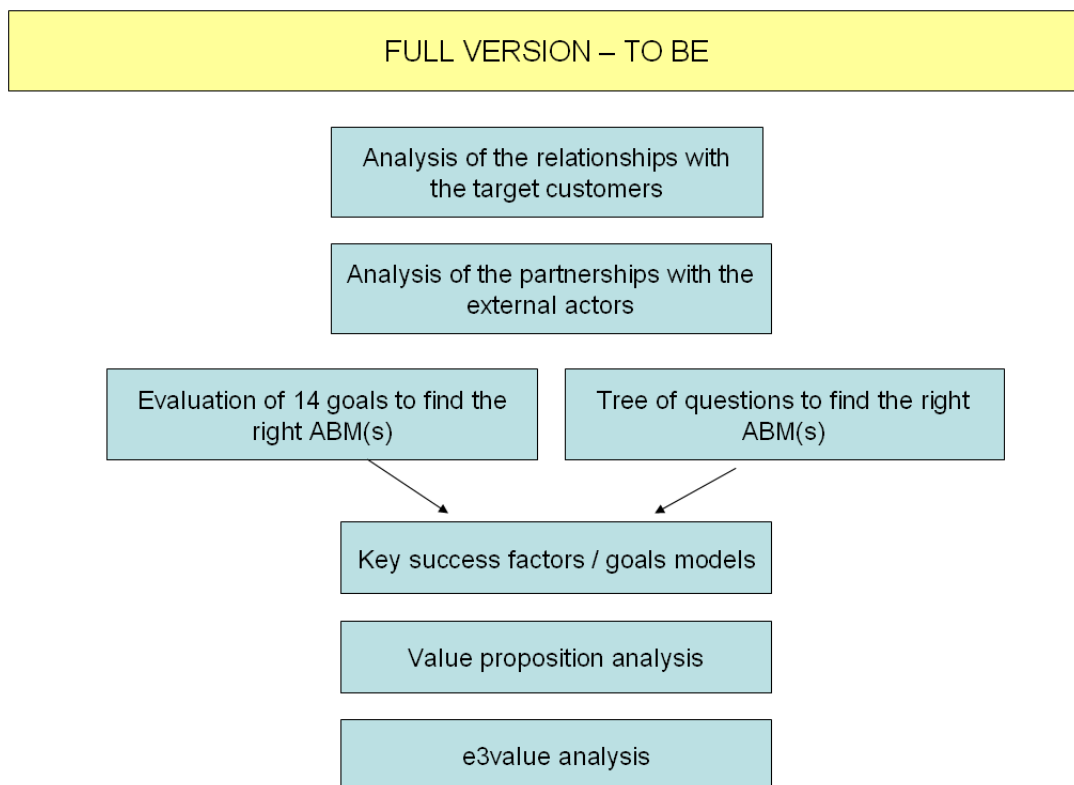


Figure 5.6: Full model for the TO BE version of the organization

5.5.1 Target customer relationships analysis

Using the Actors classification tree defined in the Light TO BE analysis, we can analyze the offers of the organization for the different target customers and fill in a tabular like the one below. It will help the user to summarize and structure the offers and compare them. The tool helps the user and gives him a definition for each information asked. It provides also an easy way to fill in it. We could analyze a few different offers for the same customer. In the same way, an offer could be valuable for a few different customers. This tabular will enable the user to summarize the different offers which are used to reach the customer and his needs.

Analysis of the offers		
ATTRIBUTE	DESCRIPTION	EXAMPLE : Offer 1
Name	Name of the offer	Selling online goods
Target customer(s)	List of the target customers involved in the offer (at least one)	Young active women
Description	Description of the offer	Selling of clothes through the website http://www.ExClothes.ext
Reasoning	Use, Risk and/or Effort	Effort : Reduction of effort through online buying
Value level	Me-Too, Innovative innovation, Excellence or Innovation	Me-Too : This kind of selling without additional value proposition is common
Price level	Free, Economy, Market, High-End	Market : The price is more or less the same than in traditional shops

Table 5.2: Tabular to fill in by the user to summary the different offers for the customers

For more information on the attributes *Reasoning*, *Value level* and *Price level* of an offer, please go to the section about eBMO in the state of the art.

5.5.2 External actors partnerships analysis

With the Actors classification tree, we can also analyze the partnerships with all external actors using an other tabular presented below. It would enable to understand deeper the role that the suppliers, allies and environmental actors play in the value proposition of the organization. An organization can have a lot of external actors and all are not strategic. That's why, the user will have the choice to fill in or not additional information on each external actor.

External actors partnerships analysis		
ATTRIBUTE	DESCRIPTION	EXAMPLE : External actor 1
Name	Name of the partner to identify	Get the products to sell it after to the customers.
Description	Description of how this partner collaborate with the organization	The suppliers sell the products to organizations which sell themselves these products to the final customer.
Reasoning	Optimization and economies of scale, Reduction of risk and Uncertainty or Acquisition of resources	Acquisition of resources
Strategic importance	{0-5}	5 because the organization could not sell anything if it was not possible to buy it from suppliers
Degree of integration	{0-5}	2 this information depends of the integration between two actors. We suppose for this example that there is no integration but some aspects of the supply chain are designed to improve the communication and the orders from the shop.
Degree of competition	{0-5}	0 because there is no competition between the website and its supplier since we suppose that the supplier don't sell the product to final customers but only to shops.
Substituability	{0-5}	0 because we suppose that the supplier is the only one who can provide this product for example.

Table 5.3: Tabular to fill in by the user to summary the partnerships analysis

The tabulars are quite easy to understand and the help provided by the tool (using the state of the art) should enable the user to fill it. The elements *Reasoning*, *Strategic importance*, *Degree of integration*, *Degree of competition* and *Substituability* are coming from the description of eBMO.

5.5.3 Evaluation of 14 goals & matching with a kind of ABM of W&V

At first, when a consultant or an entrepreneur has to choose an Atomic Business Model, it's not so easy to know which model(s) represents his organization. Due to this complexity, some people can do mistakes or bad combinations of models. That's why we propose two methods to help the user. They are proposed in this step and in the next one (Tree of questions to find the right ABM).

To facilitate the Weill & Vitale analysis, we propose a goals analysis to help the executive in order to find the right Atomic Business Model(s). We propose a list of 14 goals and the user will have to evaluate the importance of each goal for his organization. We propose three

choices :

- *Important* : This goal is strategic for the organization.
- *Neutral* : This goal is not a strategical one but can't be neglected. It can be helpful for the success of the company but the organization doesn't concentrate its strategy on this goal
- *Not Important* : This goal is not important or not applicable for the organization and we won't use it for the analysis.

We give a symbol for each choice. An *important* goal has the symbol '+', a *neutral* goal has the symbol '=' and a *not important* goal has the symbol '-'. With these symbols, we will ask the user to associate one of them with each of the 14 common strategical goals.

To analyze precisely an organization, we ask at least two *important* goals and maximum four. We also ask at least three *neutral* goals and maximum five. These two conditions oblige the user to precise his strategic goals and limit their number so that the strategy will not be dispersed with too much important goals.

The list of the 14 objectives comes from the GRL framework that we propose for each Atomic Business Model. We also used the book of Michael Porter about *Competitive advantage*[25] to complete the list of goals. The list of 14 goals is shown in the table 5.5 below with the eight Atomic Business Models (ABM). For each case of the table we choose the degree of importance for this goal and the ABM. To be as accurate as possible, we analyzed the GRL frameworks of each ABM and also the strategic objectives and key success factors defined for each ABM in the book of Weill & Vitale : *Place to Space : Moving to eBusiness Models* [32]. The regrouping of these analysis provides interesting and reliable data for our analysis.

To use these tables, we will ask the user to fill in the weight for each goal only with the name of each choice : important, neutral or not important. The executive will also have to respect the conditions about the number of *important* and *neutral* goals. When the user filled in the 14 objectives, we will propose between one and three models in function of his results. In the table 5.4, we give the evaluation of each goal in function of the ABM. We will add the results given by the user to the results below. We give the result of the operations :

Results user \ Results ABMs	Results ABMs		
	+	=	-
+	++	+	-
=	+	=	=
-	-	=	=

Table 5.4: Evaluation table for the discovery of the right ABM(s)

We will match the results of the user and the evaluation of each goal in all ABMs. The best model will be the one with the most '++' and '+' and least '-'. The '++' means that a user goal or strategy matches perfectly the goal in the ABM. The '+' corresponds to a good matching. The '-' means that the goal of the user is in contradiction of the goal for the current ABM. The '=' has a neutral signification and is not significant in our analysis. To do a ranking of the possible ABMs, we use the following weights for the symbols :

- '++' : 2 points

- '+' : 1 point

- '=' : 0 point

- '-' : -1 point

With the table above and the points associated to the symbols, we insist on the perfect matching between the strategy and the ABM. We penalize also the incompatibilities between the ABM and the strategy of the user. If a goal is important for the user and on the contrary, not important for the ABM, this goal will be sanctioned and decrease the probability that this ABM is the model corresponding to his organization.

The tool is not 100 % efficient and combination of ABMs are possible. That's why we will present the results with adaptations. We analyzed the results for different compagnies and we saw that a difference less than or equal to two points at the end of the process is not significant. If one model has a negative point in its column, we will remove it because the common strategy of the model is not compatible with the case of the user. So, for example, we analyzed Ebay with our tool and at the end of the process, we obtain eight for the Virtual Community business model, eight for Intermediary business model and seven for the Full Service Provider. The results are close and we have to analyze precisely the reality of the company. We can see that EBay is an intermediary between the sellers and the buyers. EBay developed also a great community around his service and that's one of the most important key of the success of the company. Ebay is not a Full Service Provider because he doesn't sell goods. We could see it easily with the *Tree of questions* in the next section. We propose maximum three models to the user and he has to choose in function of his case. The user has always the final decision.

	D2C	FSP	WOE	Int	SI	VNI	VC	CP
1. Increase the turnover	+	=	=	=	-	-	-	=
2. Increase profit margins (example : decrease the costs)	+	+	+	=	+	-	=	=
3. Decrease the final price for the customers	=	=	-	-	-	=	-	-
4. Increase the knowledge about the customers	-	=	-	+	-	+	+	-
5. Improve the value proposition of the company	=	+	+	+	-	=	+	+
6. Differentiation from competitors	+	-	-	=	-	-	=	-
7. Decrease the inbounds costs	=	=	=	-	=	=	-	=
8. Prevent the entrance of new competitors (with barriers)	-	=	-	=	-	-	=	+
9. Work at innovation and research	-	-	-	=	=	=	=	-
10. Decrease the time of production, delivery or update publication	=	=	=	-	=	-	-	=
11. Improve the Human Resource Management (HRM)	-	-	-	-	=	=	-	-
12. Increase the efficiency of the company	=	=	+	=	+	+	=	=
13. Increase the notoriety of the company	=	+	+	+	-	-	+	+
14. Increase the number of customers	+	=	-	+	-	=	+	=

Table 5.5: Evaluation of 14 goals for each ABM

We will now give a complete example with Bivolino.com, a Belgian e-commerce company which sells customized shirts on the Internet since 1997. We chose three *important* goals for the company :

- Increase the turnover
- Differentiation from competitors
- Increase the notoriety of the company

To survive on the Internet, the company must increase his turnover to grow and the differentiation is very important to decrease the competition with other actors only on the prices. The increase of the notoriety is also a strategic objective to export the know-how and the concept.

Our choice are represented in the *Eval.(uation)* column. At the last line, we can see in bold that the ABM with the highest score is Direct to Customer. This model is the only one because the others have at least two points less except the Intermediary model. This model is not possible because there is an incompatibility about the fifth goal : Improve the value proposition of the company. So, the Direct to Customer model is the right model for the Bivolino company which chose the Internet ten years ago to expand its activity and export its product outside the Benelux.

	Eval.	D2C	FSP	WOE	Int	SI	VNI	VC	CP
1. Increase the turnover	+	++	+	+	+	-	-	-	+
2. Increase profit margins (example : decrease the costs)	=	+	+	+	=	+	=	=	=
3. Decrease the final price for the customers	-	=	=	=	=	=	=	=	=
4. Increase the knowledge about the customers	=	=	=	=	+	=	+	+	=
5. Improve the value proposition of the company	=	=	-	-	-	=	=	-	-
6. Differentiation from competitors	+	++	-	-	+	-	-	+	-
7. Decrease the inbounds costs	=	=	=	=	=	=	=	=	=
8. Prevent the entrance of new competitors (with barriers)	-	=	=	=	=	=	=	=	-
9. Work at innovation and research	-	=	=	=	=	=	=	=	=
10. Decrease the time of production, delivery or update publication	=	=	=	=	=	=	=	=	=
11. Improve the Human Resource Management (HRM)	-	=	=	=	=	=	=	=	=
12. Increase the efficiency of the company	-	=	=	-	=	-	-	=	=
13. Increase the notoriety of the company	+	+	++	++	++	-	-	++	++
14. Increase the number of customers	=	+	=	=	+	=	=	+	=
Total :		7	2	1	5	-3	-3	3	0

Table 5.6: Evaluation of 14 goals for each ABM : case of Bivolino.com

5.5.4 Tree of questions to find the right ABM

We now present a tree of questions that leads to one (or more) model(s). In function of the answers, we propose one or two models. Normally, the models are the same that the ones in the previous section but it's not always the case. The Tree of questions uses a distinct method to elicitate the right ABM(s) and it gives not ach time the same results than the strategical points analysis. Both solutions are useful and results can be complementary.

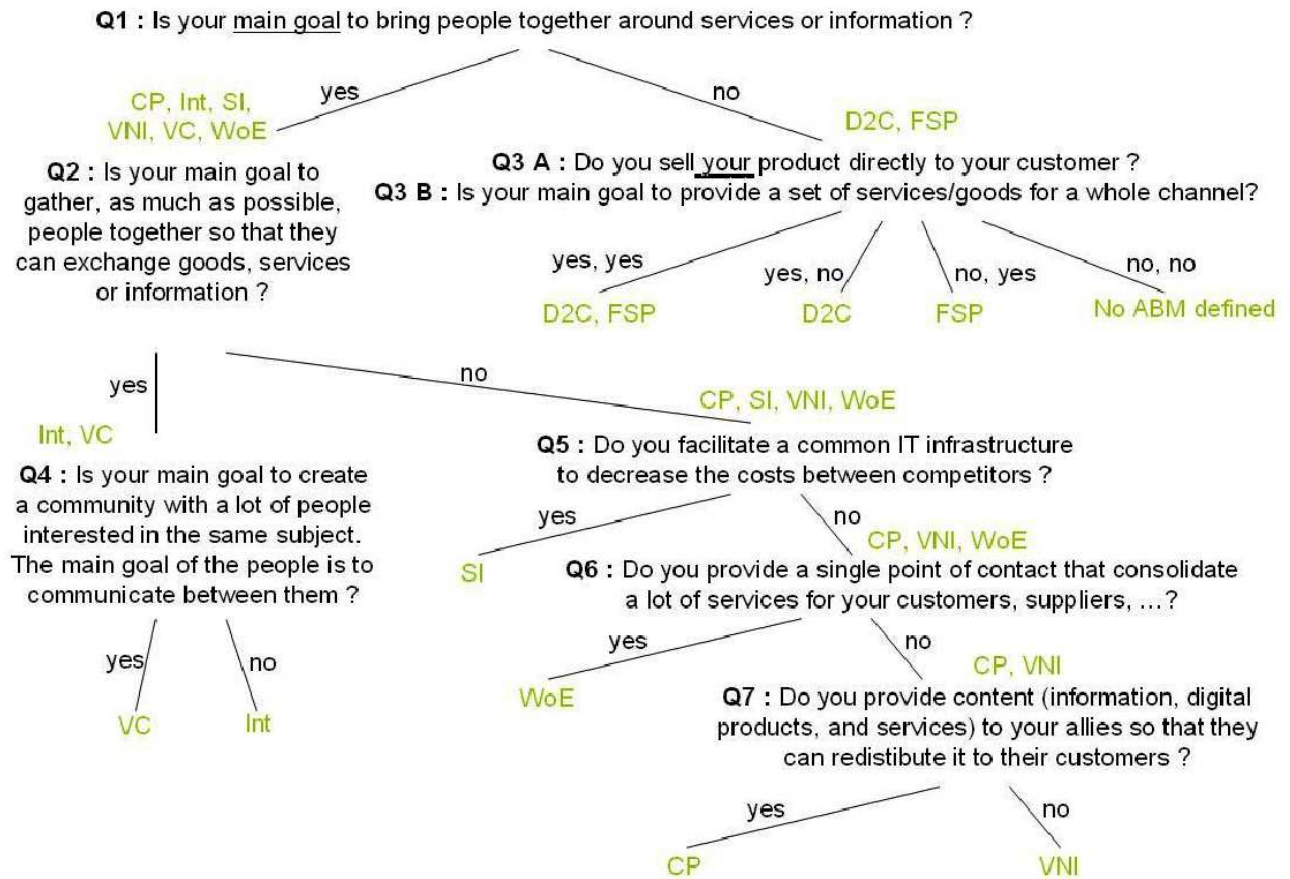


Figure 5.7: Questions to determine the right Atomic Business Model

In the tree, the following abbreviations are used :

- **ABM** : Atomic Business Model
- **CP** : Content Provider
- **Int** : Intermediary
- **SI** : Shared Infrastructure
- **VNI** : Value Net Integrator
- **VC** : Virtual Community
- **WoE** : Whole of Enterprise / Government
- **D2C** : Direct to Customer
- **FSP** : Full Service Provider

The Atomic Business Models applicable at this state are represented in light gray in the tree.

To use this tree, the executives have first to find the specific services that the company provides to the customers, the suppliers and the allies. A SME could have several services with, for each, specific characteristics. The user will do a new analysis and answer the questions for each service of the organization.

When the process of identification is done, he can analyze the basic models given by Weill & Vitale and, next, adapt and improve it to his situation. According to the results, we can also analyze the possible conflicts between the different Atomic Business Models.

Legend : **OK** neutral;  obvious synergy;  possible conflict;  obvious conflict

	CP	D2C	FSP	Int	SI	VNI	VC	WoE
Content Provider (CP)					OK		OK	OK
Direct to customer (D2C)			OK	OK		OK		
Full service Provider (FSP)								OK
Intermediary (Int)							OK	
Shared Infrastructure (SI)						OK	OK	
Value Net Integrator (VNI)								
Virtual Community (VC)								OK
Whole of Enterprise (WoE)								

Table 5.7: Possible conflicts of Atomic Business Models of W&V [15]

Some combinations of business models are possible, others are impossible. The combination between the Content Provider ABM and the Direct to Customer ABM are impossible, for example. Indeed, the definition of the Content Provider is to provide some contents to organization-allies. It means that, on the contrary of the Direct to Customer business model, they don't provide any content to the customers themselves but to organization which plays the role of intermediary (following the Intermediary model).

The big companies can have several different domain of activities (or even some companies that they own). Each of these domain can have its own core business. Companies like Google, Microsoft or Yahoo have several different value propositions and it would be possible to sustain in the environment even if some of the business units or companies they own have business models which seem difficult to combine. On the contrary, for the SMEs, it's almost impossible to concentrate on two or more business models which seem impossible to combine since it's better for them to allocate more resources to one precise business model and improve itself in it.

5.5.5 Key Success Factors and Goals models

In this section, we propose Key Success Factors and Goals models for each Atomic Business Models. It helps the user to refine his value proposition and give him ideas to sell and develop his product. This section is mainly based on the book of Weill & Vitale : *Place to Space : Migrating to eBusiness Models* [32].

At this point of the Full TO BE analysis, the user has a general strategy thanks to the Light TO BE analysis and the development already done in this Full TO BE analysis. He has also the choice between one and tree Atomic Business Models which, combined, form the way to implement the business. The ABMs were confirmed by the previous part giving a tree of questions. The combination and adaptation of the ABMs creates the unique model of the organization. The user will have the possibility to refine and understand deeper the goals behind each ABM thanks to the GRL models proposed in the first part of our thesis and with key success factors which give more practical advices to improve the value proposition of the company.

To give a more interesting and more structured view of the key success factors, we divided them in function of the pillars of eBMO. So we give for each ABM, the nine business blocks composing eBMO. The Actor element is primordial and is included in the Capability business blocks of eBMO.

In the paper *Linking Requirements Goal Modeling Techniques to Strategic e-Business Patterns and Best Practice*, Steven J. Bleistein , Aybuke Aurum, Karl Cox and Pradeep K. Ray [2] propose the modeling of the *Value Net Integrator* Atomic Business Model using the GRL modeling. In this section, we analyze the other Atomic Business Models proposed by Weill & Vitale.

In our opinion, it can be very interesting to analyze the Atomic Business Models using a goal model like GRL. These models attached to the Atomic Business Models can represent best practices to counsel or give advices to some companies. The authors mentioned also that it is a good first guide for the requirements elicitation of an e-business initiative. These goal models can improve strategic alignment of the resulting requirements with best-known practices for the business model identified.

We analyzed the book of Weill & Vitale [32] and, using the GRL models, we proposed for each Atomic Business Model in order to complete the tables. For each of the eight Atomic Business Models, we propose firstly the GRL model with a short description and then its Key Success Factors. These information will be used in the tool.

5.5.5.1 Direct to Customer

The main goals of this *Direct to Customer* model are to reduce costs, enlarge the assortment and access to a larger market thanks to Internet. These goals are refined by other goals with, among others, increase the number of visitors and then of customers. An adapted website is also a quite important goal to attract more customers.

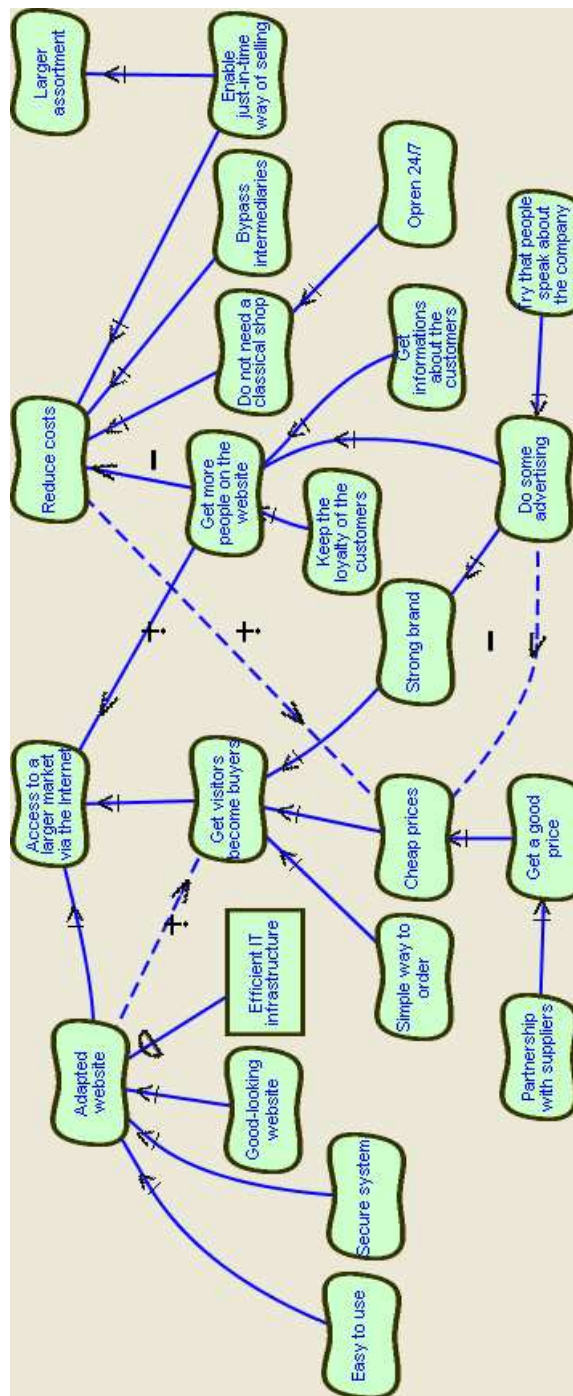


Figure 5.8: Modeling of Direct to Customer by GRL.

Pillar	Building block of Business Model	Direct to Customer
Product	Value Proposition	<ol style="list-style-type: none"> 1. Create unique content or product to reduce price competition and commodities. 2. Try to build a strong brand to increase the trust in your organization.
Customer Interface	Target Customer	
	Distribution Channel	<ol style="list-style-type: none"> 1. Reduce customer acquisition costs. 2. Increase repeat purchases and average transaction size. 3. Use banners, affiliate programs, emails, to do marketing, prospecting and selling electronically.
	Relationship	<ol style="list-style-type: none"> 1. Create and maintain customer awareness. 2. Own the customer relationship and understand individual needs. 3. Manage potential channel conflicts.
Infrastructure Management	Value Configuration	<ol style="list-style-type: none"> 1. Provide an efficient order process. 2. Ensure security for customers and the organization. 3. Provide interfaces easy to use and rich in experience.
	Capability	<ol style="list-style-type: none"> 1. Use the customer information to increase revenues and margins.
	Partnership	<ol style="list-style-type: none"> 1. Forming and managing strategic partnerships with all supply chain actors : suppliers, payment processors, ...

Pillar	Building block of Business Model	Direct to Customer
Financial Aspects	Cost Structure	1. Reduce costs to increase margins by serving customers directly or cutting steps out of the distribution chain.
	Revenue Model	1. Sources of revenues : direct sales (main), advertising, sale of customers information and product placement fees. 2. Try to develop just in time purchases : buy products only after customers payments.

Table 5.8: Key success factors for the Direct to Customer model

5.5.5.2 Full Service Provider

The most important goal in the *Full Service Provider* model is to get a sufficient power of buying in order to reduce the prices from the suppliers. As we saw in the 5 Forces Model, this goal enables to have a bargaining power on suppliers for which the organization could become a very important customer. This goal is based on enough sales and a lot of visitors on the website.

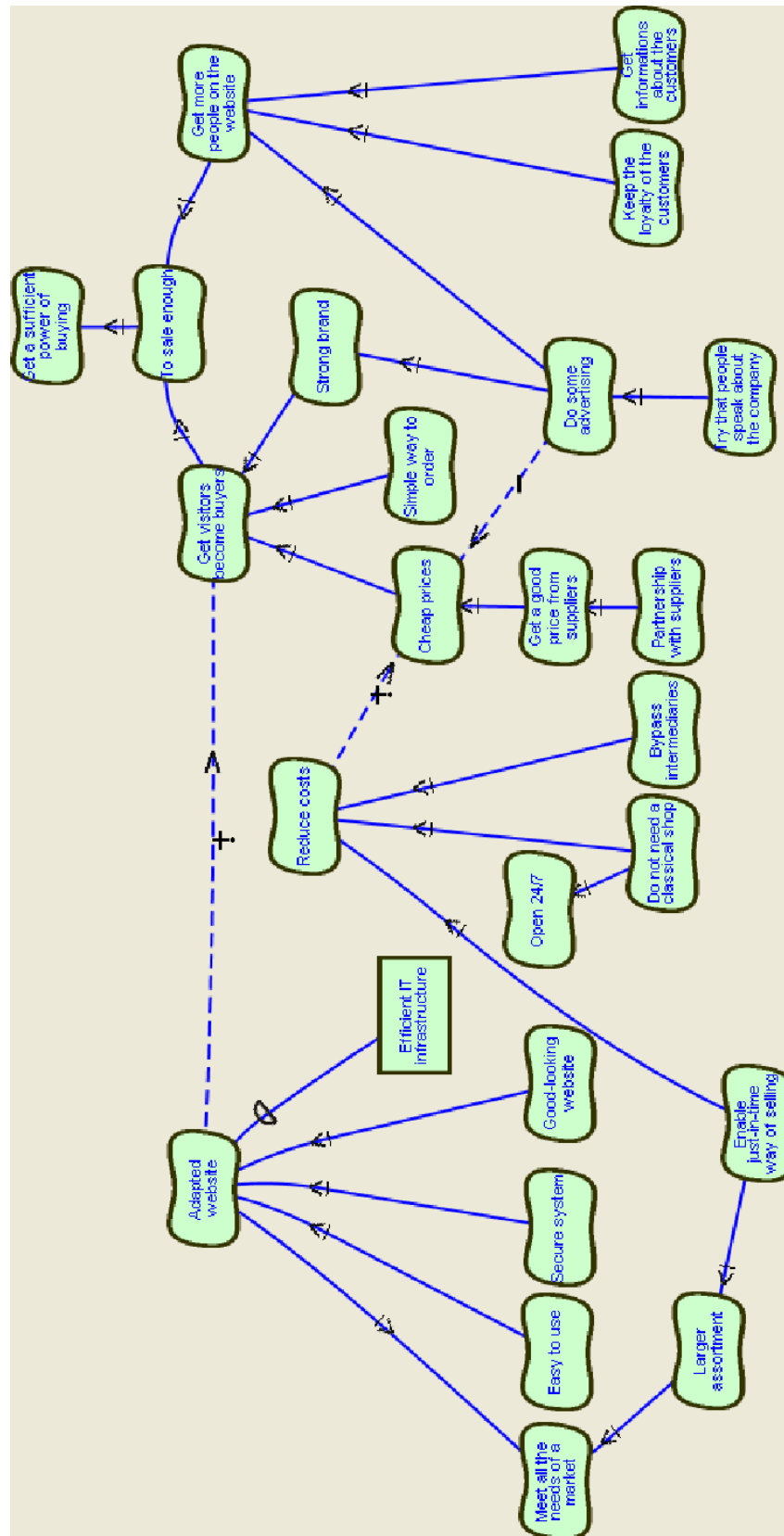


Figure 5.9: Modeling of Full Service Provider by GRL.

Pillar	Building block of Business Model	Full Service Provider
Product	Value Proposition	<ol style="list-style-type: none"> 1. Be a leader in your domain. Be able to supply a large portion of what most customers need in the domain of interest. 2. Use or build (harder) your brand, credibility and trust necessary for a customer to look to the firm for its complete needs in an area. 3. Be as broad as possible in your domain to fulfil all customers needs.
	Target Customer	<ol style="list-style-type: none"> 1. Own more information (orders, preferences and transaction of the customers) about the consumers than all players. It will help to provide a full set of good services to the customers.
	Distribution Channel	<ol style="list-style-type: none"> 1. Try to develop a single point of contact between the organization and the customers to consolidate your model and facilitate its management.
Customer Interface	Relationship	
	Value Configuration	<ol style="list-style-type: none"> 1. Develop and integrate a firmwide transaction processing, customer databases, electronic links to suppliers and security. This must be transparency for the whole business units, the global firm and all third-party providers.
	Capability	<ol style="list-style-type: none"> 1. Collect, synthesize and analyze information about customers and their desires to match the actual value proposition and identify new products.
	Partnership	<ol style="list-style-type: none"> 1. Develop strategic partnerships with third-parties and try to avoid them to be your competitor.
Infrastructure Management		

Pillar	Building block of Business Model	Full Service Provider
Financial Aspects	Cost Structure	<ol style="list-style-type: none"> 1. Try to decrease your important fixed costs for this kind of organization. 2. Try to be larger to create a sufficient buying power to reduce the procurements costs.
	Revenue Model	<ol style="list-style-type: none"> 1. Revenues from selling its own products and those of others. Also possible : annual membership fees, management fees, transaction fees, commission on third-party products, advertising from third-party providers and fees for data about customers. 2. Additional revenues are important to support the overhead of running the model (and more and more with bigger and bigger organizations).

Table 5.9: Key success factors for the Full Service Provider model

5.5.5.3 Whole of Enterprise

For this *Whole of Enterprise* model, three main goals can be identified : economies of scale, sparing time and providing a better help to customers. In order to reach these goals, the key concept is to provide a single-point of contact.

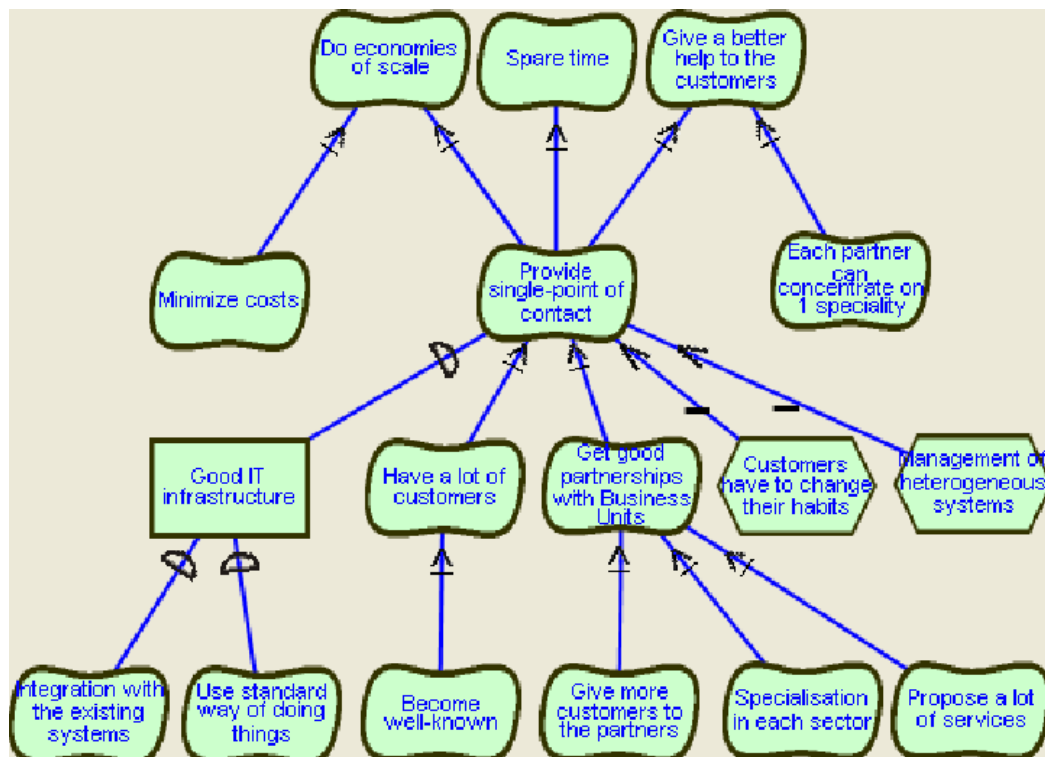


Figure 5.10: Modeling of Whole of Enterprise by GRL.

Pillar	Building block of Business Model	Whole of Enterprise
Product	Value Proposition	
Customer Interface	Target Customer	
	Distribution Channel	1. Identify segment markets and match the possible life events with a maximum of individual customers needs.
	Relationship	1. Change the customer behavior to make use of the new model (single point of contact vs contacts directly with individual business units).
Infrastructure Management	Value Configuration	1. Reduce costs in the individual business units and manage the transfer pricing to the single point of contact. 2. Change the business unit view to an enterprise-wide view with a broad product awareness, training and cross-selling.
	Capability	1. Translate the customer view to existing legacy processes and systems at the low level of the organization. We must also analyze and find the elements that constitutes the life events of the customers that can cause contacts with the company. 2. Good leadership to change the organization and manage complex and heterogeneous information system.
	Partnership	
	Cost Structure	
Financial Aspects	Revenue Model	1. Revenues are different in case of for-profit or non-profit organization. For-profit : revenues from provision of goods or services. Also possible to charge a fee to access to this level of service. Non-profit : goal of reducing costs and improving the services to the community.

Table 5.10: Key success factors for the Whole of Enterprise model

5.5.5.4 Intermediary

To succeed in an *Intermediary* model, an organization need a lot of customers interested in the same kind of product or service. It's based on a strong and reliable brand and a relevant

advertising in order to increase the number of people on the website and then have a lot of people who want to propose (and who need) a product or service.

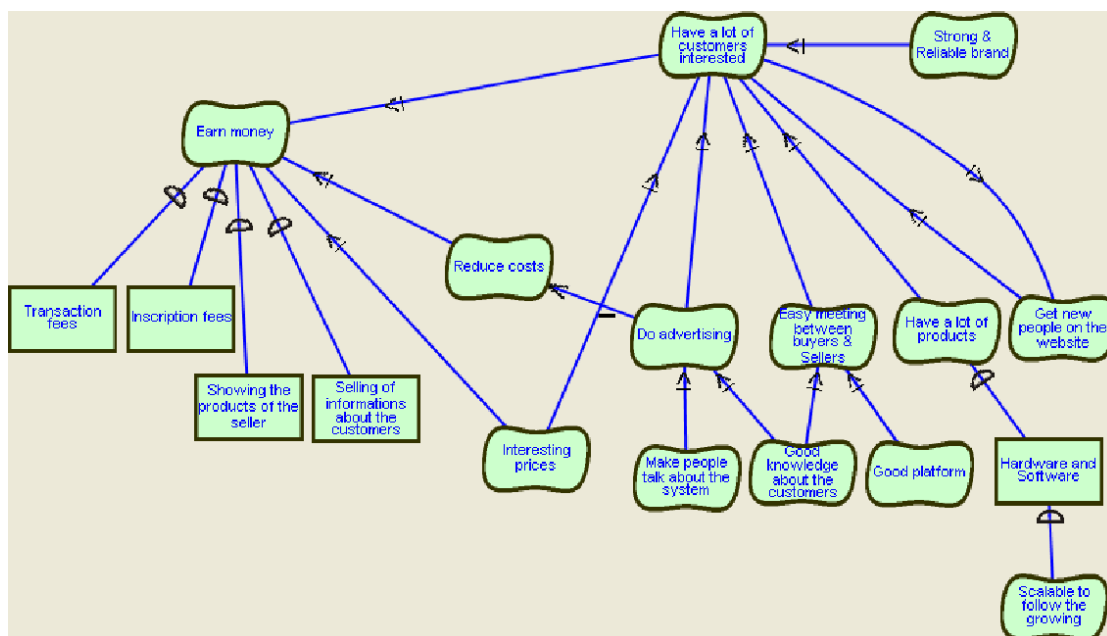


Figure 5.11: Modeling of Intermediary by GRL

Pillar	Building block of Business Model	Intermediary
Product	Value Proposition	1. Try to have a lot of products or services to attract more customers.
Customer Interface	Target Customer	
	Distribution Channel	1. Do precise analysis of customer data, spotting trends and identifying changes in preferences and sizes of customers segments. 2. Try to facilitate the meeting between buyers and sellers.
	Relationship	1. Own the customer relationships and develop a website with a high degree of "stickiness" (need or desire to return to the site).
Infrastructure Management	Value Configuration	1. Develop a sufficient volume of usage to cover fixed costs required by the infrastructure. 2. Develop the ability to balance service completeness with customer volume to optimize the value delivered. Evaluate the potential loss of customers for every additional cost.
	Capability	1. Building up infrastructure just quickly enough to meet demand as it increases. 2. Collect, synthesize, and use information about products, prices and other market factors in order to promote the products and specify precisely the characteristics of the products.
	Partnership	
Financial Aspects	Cost Structure	
	Revenue Model	1. Revenues can be from buyers, sellers or both. There can be listing, transaction, sales, subscription, success fees or some combinations. The data of the customers can also be a part of the revenue for intermediaries.

Table 5.11: Key success factors for the Intermediary model

5.5.5.5 Shared Infrastructure

The stakeholders involved in the *Shared Infrastructure* model want to realize economies of scale thanks to the regrouping of their IT. Get a maximum of users which share a resource enable to reach this goal. It's very important to propose a fair service for all partners involved.

We mean by *fair service* that the rules are the same for each partner.

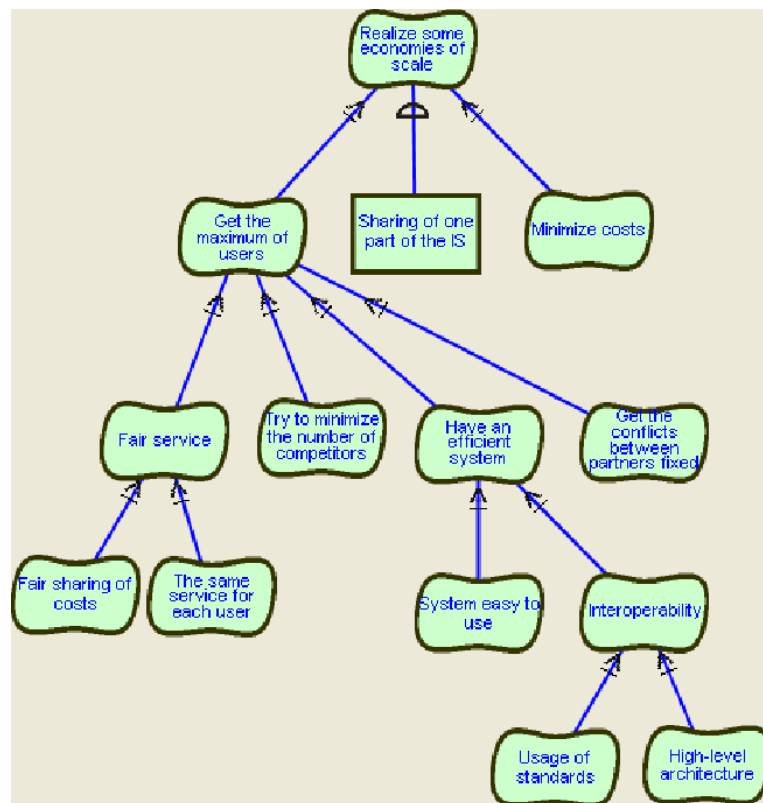


Figure 5.12: Modeling of Shared Infrastructure by GRL.

Pillar	Building block of Business Model	Shared Infrastructure
Product	Value Proposition	
Customer Interface	Target Customer	
	Distribution Channel	1. The model implies no dominant partner that gains more than any other partner.
	Relationship	1. Manage the conflicts between the e-business initiatives of the alliance partners.
Infrastructure Management	Value Configuration	<ol style="list-style-type: none"> 1. Deliver accurate and timely statements of the services to all members of the alliance. 2. Be prepared to get more members in your alliance and so a broader system. 3. Efficiently running complex infrastructure to attract participants.
	Capability	<ol style="list-style-type: none"> 1. The presentation of the products and information offered must be the same for every member of the alliance to improve the links of the members and the alliance. 2. The system must be interoperable to facilitate the links between the systems of each members and the central system. The system must use standards to warranty his success. 3. Also have a good manager who has strong negotiation skills to centralize the coalition of competitors having all diverse backgrounds, resources, and goals.
	Partnership	1. Ellaborate a wide alliance between partners and customers to share high fixed costs to enable the alliance to be sustainable.

Pillar	Building block of Business Model	Shared Infrastructure
Financial Aspects	Cost Structure	1. The costs come from the traffic and the infrastructure and can be decreased (for each member) by the entrance of new partners.
	Revenue Model	1. The revenues are generated by membership fees and transaction fees. 2. The company can be for- or non-profit organization. The for-profit implies often a source of contention between equity holders and nonequity users of the system who could pay more for each transaction. The non-profit case is open to all eligible organizations and potential profits are distributed back to all members.

Table 5.12: Key success factors for the Shared Infrastructure model

5.5.5.6 Value Net Integrator

This GRL model below comes from the text «Linking Requirements Goal Modeling Techniques to Strategic e-Business Patterns and Best Practice»[2].

The goal of these kind of *Value Net Integrator* model is to gather information along the supply chain. The organizations of this type have then to control and synthesize this information and next sell to its customers. It is necessary to change the supply chain from physical to virtual.

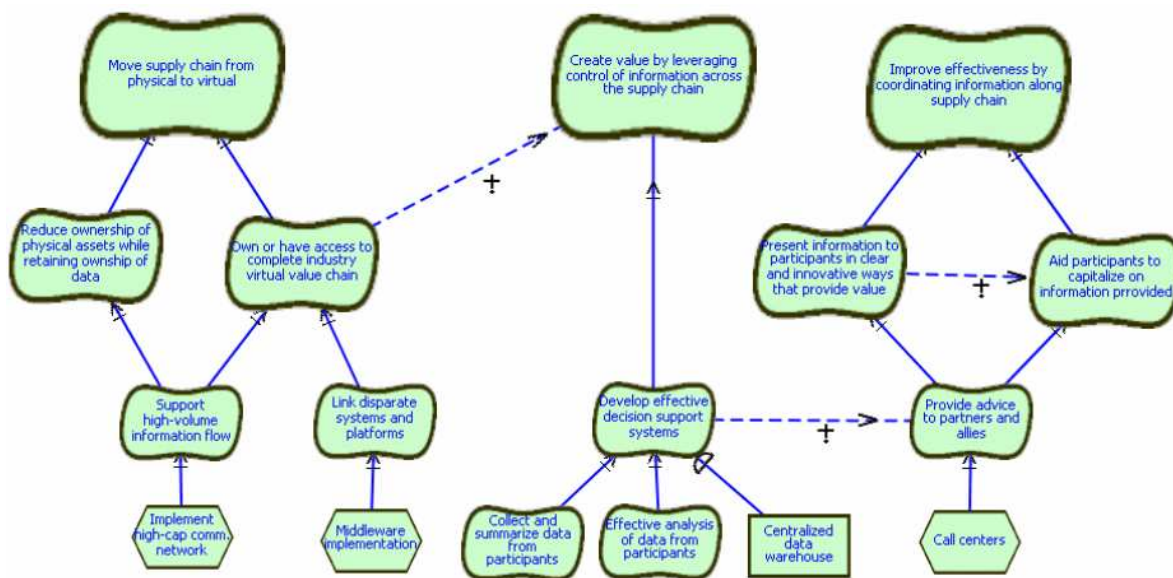


Figure 5.13: Modeling of Value Net Integrator by GRL[2].

Pillar	Building block of Business Model	Value Net Integrator
Product	Value Proposition	1. Establish a trusted brand recognized at all places in the value chain.
Customer Interface	Target Customer	
	Distribution Channel	1. Try to develop a single point of contact between the organization and the customers to consolidate your model and facilitate its management.
	Relationship	1. Help other value chain participants capitalize on the information provided by the VNI. 2. Install a good relationships management with customers and all major players in the value chain.
Infrastructure Management	Value Configuration	1. Move supply chain from physical to virtual. 2. Own or have access to the complete industry virtual chain. 3. Operate in markets where information can add significant value, such as those complex, fragmented, that require specialized knowledge. 4. Try to link the IT architecture to strategic objectives.
	Capability	1. Reduce ownership of physical assets while retaining ownership of data. 2. Do a good information management : collect, synthesize, distribute and present information coming from multiple sources and evaluate the cost of each of them in function of the customer benefits.
	Partnership	1. Use and identify levers of influence, rather than direct control.

Pillar	Building block of Business Model	Value Net Integrator.
Financial Aspects	Cost Structure	
	Revenue Model	1. Revenues are generally earned by fees or margins on the physical goods that pass through the industry value net. The VNI use information from consumers to meet needs and adapt prices and from suppliers to reduce the inventories and lead times.

Table 5.13: Key success factors for the Value Net Integrator model

5.5.5.7 Virtual Community

Get a lot of people involved in the community is the main goal of the organizations following the *Virtual Community* model. To reach this goal, it is important to create a *community way of thinking* and that the users speak about it to their acquaintances. We mean by *community way of thinking* the fact that people think and interact in the same way about the services you propose in link with their shared interests.

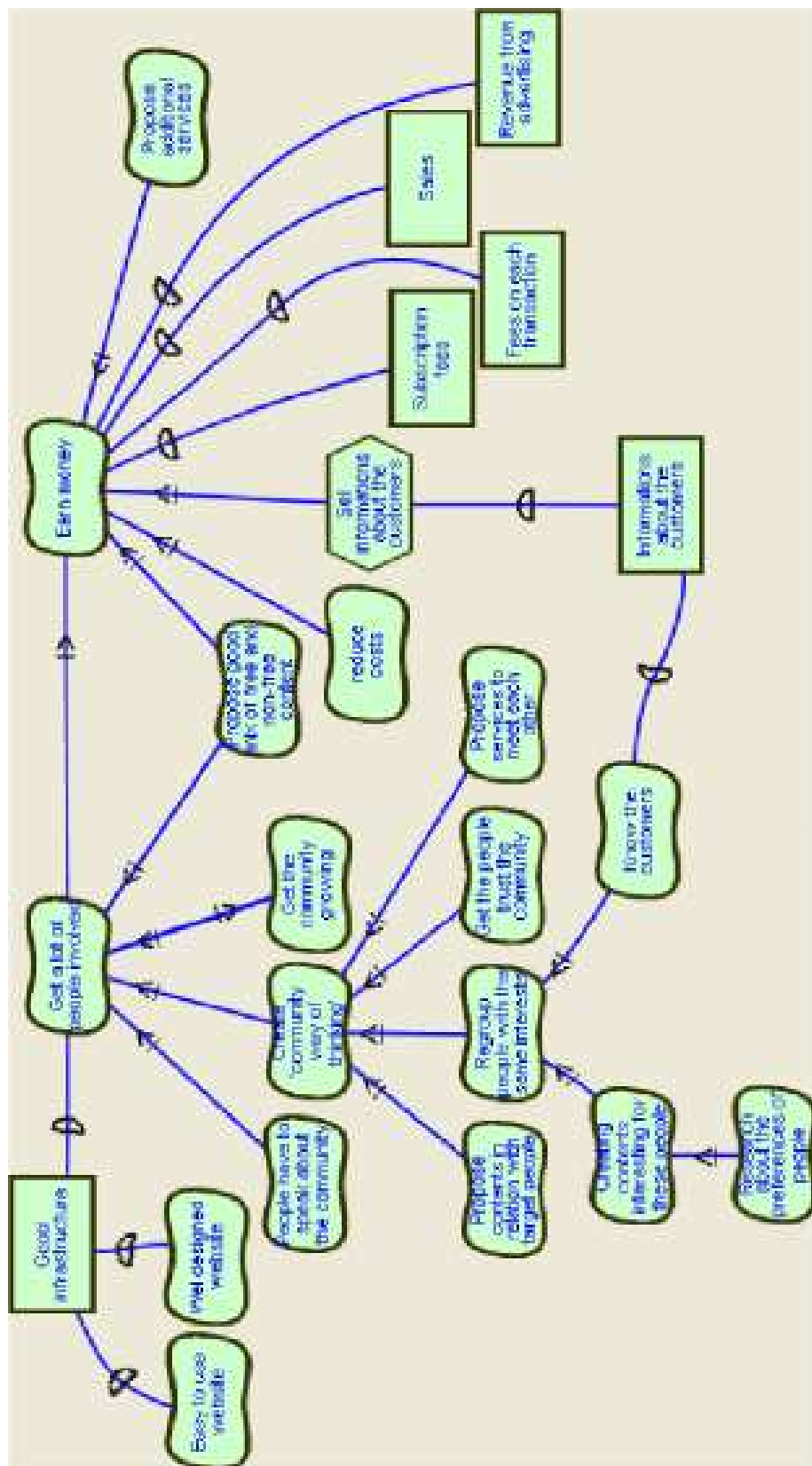


Figure 5.14: Modeling of Virtual community by GRL.

Pillar	Building block of Business Model	Virtual Community
Product	Value Proposition	1. Develop a lasting sense of community.
Customer Interface	Target Customer	1. The primary goal is to find and retain mass of members.
	Distribution Channel	1. A firm can sponsor a virtual community with no direct revenue but intangible benefits such as customer loyalty and increased knowledge about its customer base. 2. Discover member needs and understand the value members attach to meet those needs.
	Relationship	1. Balance commercial potential and members interests. 2. Propose a good mix of free and non-free content for the members of the community.
Infrastructure Management	Value Configuration	1. Maintain privacy and security for information about members. 2. Source or create attractive content at an economically attractive price. 3. Try to develop a website easy to use.
	Capability	1. Build and maintain loyalty with an appropriate mix of content and features. 2. Try to engender a feeling of trust in the community by its members
	Partnership	
Financial Aspects	Cost Structure	
	Revenue Model	1. There are a lot of different sources of revenue : membership fee, direct sales of goods and services, advertising, clicktroughs, sales commission, 2. Use the member profile information with advertisers and merchants (respecting the law).

Table 5.14: Key success factors for the Virtual Community model

5.5.5.8 Content Provider

There are only few competitors in the same market which follow the *Content Provider*

model. Indeed, it needs a well-known and reliable brand that can be built by reliable content, excellent service and very good advertising.

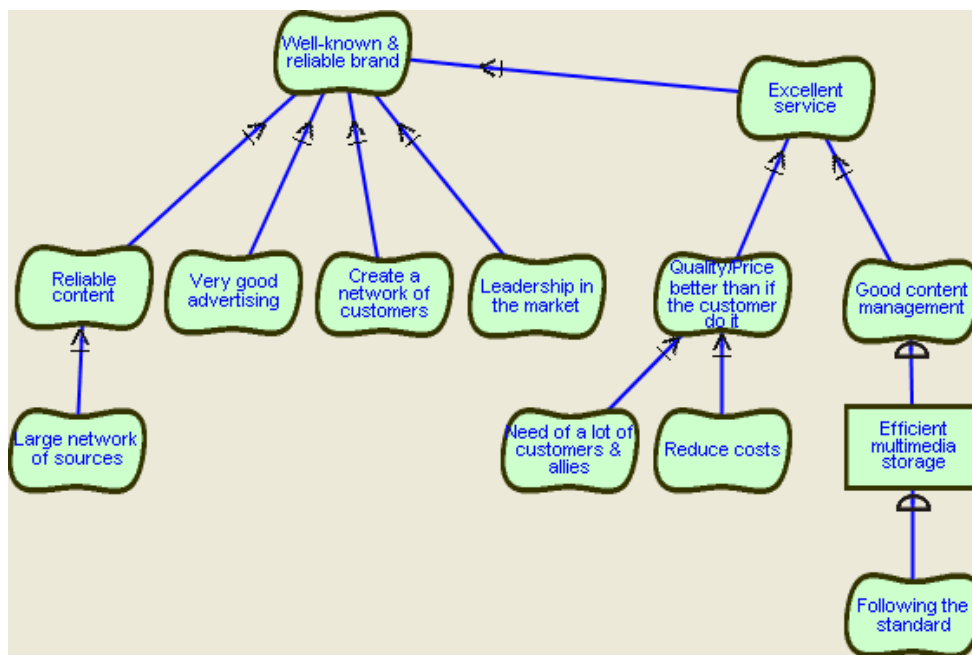


Figure 5.15: Modeling of Content Provider by GRL.

Pillar	Building block of Business Model	Content Provider
Product	Value Proposition	<ol style="list-style-type: none"> 1. The CP must provide reliable, timely content in the right format and at the right price with an excellent service. 2. The development of a brand is very important and the name of the CP can help the customer to recognize the value and hence the price that vary with the reputation of the CP.
	Target Customer	<ol style="list-style-type: none"> 1. Adjust your offer to your customer and do different prices in function of the contents value for the customer.
Customer Interface	Distribution Channel	<ol style="list-style-type: none"> 1. Adapt your content with modularization, storing, retrieval, combination to deliver it in a large number of ways adapted for your customers. It shows that you understood the desires corresponding with the characteristics of your customers.
	Relationship	
Infrastructure Management	Value Configuration	<ol style="list-style-type: none"> 1. Develop your expertise in your field and it requires significant investments in human expertise. The expertise has to be consolidated to attract professionals to join the organization. 2. The building and maintaining of the meta-knowledge of your content is important to face the challenge of the evolving market.
	Capability	<ol style="list-style-type: none"> 1. Provide excellent content, the best in the field or in the region because quality is done by professional and quality decrease the competition in the market. It's essential to succeed in big areas.
	Partnership	<ol style="list-style-type: none"> 1. Develop and maintain a good network of third parties to distribute your content. You must also sustain your network of content suppliers and creators. It's impossible to control these networks but it's possible to build up a network of influence.

Pillar	Building block of Business Model	Content Provider
Financial Aspects	Cost Structure	
	Revenue Model	1. Revenues are fees from allies and third parties that can be fixed for each month or year and also for the number of times the customers access the content. The fees can be more expensive for content branded by the provider. The content provider can also propose a direct-to-customer business has to add services to gain fees and be different from third parties.

Table 5.15: Key success factors for the Content Provider model

5.5.6 Value proposition refinement

In this section, we describe a way to refine the value proposition(s) of the firm and a way to describe it in an easier way from the previous information.

A firm has at least one value proposition. A value proposition gives «an overall view of one of the firm's bundles of products and services that together represent value for a specific customer segment. It describes the way a firm differentiates itself from its competitors and is the reason why customers buy from a certain firm and not from another.»[18] Going from this definition, we will ask to the user to give a first overview of one or several value proposition. We are nearly at the end of our analysis and it's the right moment to analyze the value proposition(s) of the organization. The executive has now all elements to structure precisely different ways how its organization makes profit.

Previously in this Full TO BE analysis, we asked the user to do an offer analysis. In a table, the user summarized the different offers. The offers are at the center of the value propositions. For this reason, we will ask the user, using this table, to classify offers and assign each to one value proposition.

After all assignments, the user will have a good overview of his value propositions and be able to refine his business model to improve each value proposition and bring closer the different value propositions and the customers of the company in all active segments.

5.5.7 e3value for the financial analysis

This section covers all financial aspects of the organization. We don't use the eBMO financial pillar as base for this part because it's not graphical. It is a weakness because new business models live on a network of partners and this network is more explicit and easier to understand on a scheme. M. Petit, J. Gordijn and R. Wieringa explained the networks of organizations in their text about networked value constellations : «As a result of the widespread use of the Internet, enterprises increasingly organize themselves as value constellations»[20]. We chose e³value as graphical method because it's used for years by universities and companies to modelize their value propositions.

The user will have to modelize all financial process thanks to the e³value tool : e3editor available on <http://www.e3value.com/tools/>. The modelization of the financial aspects will be easier thanks to the previous activities which include a definition of the partnerships, the actors, the offers, ... and we will remind it in order to facilitate the building of the model.

In the tool, we will help the user with a summary of all aspects of an e³value model. We will provide :

- *Actors* : All actors that we identified previously are potentially needed in the e³value scheme.
- *Corresponding ABM(s)* : The ABM(s) are(is) a good base of the common economical and objects flows in the kind of the organization.
- *Mission statement* : This element will not directly gives elements to introduce in the scheme but can help the user to lead his business model in accordance with his mission statement.
- *Instantiation of the Value Chain* : All elements of the Value Chain involve potential economical flows that are interesting to put in the e³value scheme.
- *Target customers relationships* : All offers with the target customers are at the root of the value proposition and should be in the e³value scheme.
- *External actors partnerships* : Most of the partnerships with external actors includes economical flows which must be represented in the e³value scheme.

5.6 Full AS IS analysis

The Full AS IS analysis is a complete analysis of the current situation. Usually the Full AS IS version is not analyzed because it takes a lot of time and the user would prefer to spend this time to think about the future than to analyze what he already knows. Nevertheless it is always possible if the user wants to precise his current situation before to change it. If we follow our preferred way through the roadmap, the user will not take time for the Full AS IS analysis. We consider that it is used when a user implements the future project for which he gives details in the Light and Full TO BE analysis. The TO BE becomes the AS IS and the TO BE will be the next business model of the company.

In the Full AS IS, we do the same activities than in the Full TO BE but we add two activities to improve the examination of the SWOT made in the Light AS IS analysis. In fact we create links between the Value Chain and the Strengths and Weaknesses in the *Questionnaire about the strengths and the weaknesses of the process* and in the *Questionnaire about opportunities and threats behind the 5 Forces Model*, we create links between the 5 Forces Model of Porter with the Opportunities and Threats defined in the SWOT analysis.

All activities included in the Full AS IS analysis are listed in the figure below.

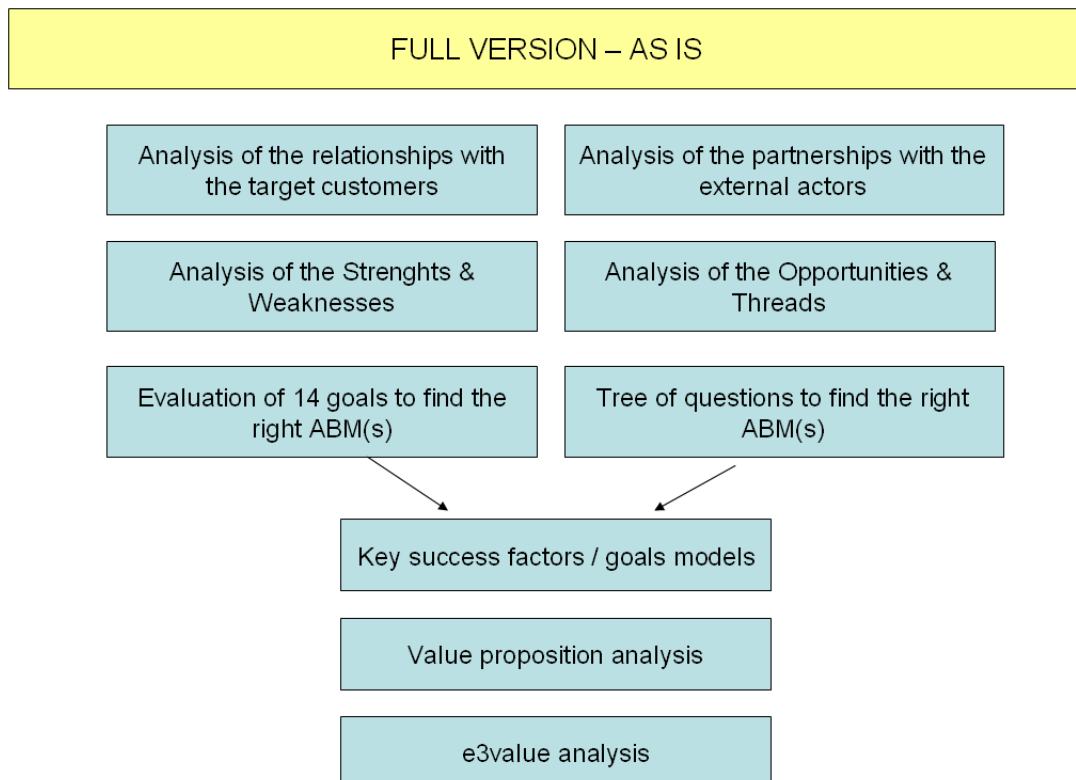


Figure 5.16: Full model for the AS IS version of the organization

In this section, we will only give information on the two specific activities of the Full AS IS analysis. For information about the other activities, please refer to the Full TO BE analysis.

5.6.1 Questionnaire about the strengths and the weaknesses of the process

Going from the Light TO BE analysis, we take the instantiation of the Value Chain and we fill in the questionnaire below. The question could be : For each element identified before, tell the strength aspects and the weakness aspects of the organization. The user will get the definition of each element of the value chain to help him in his task to fill in the questionnaire. We will also give the instantiation of each element to facilitate his decision.

	Strengths	Weaknesses
General inbound logistics		
Operations		
Outbound logistics		
Marketing and sales		
Service		
Firm infrastructure		
Human Resource Management		
Technology development		

Table 5.16: Strengths and Weaknesses in the Value Chain

This tabular should be the core of the analysis. Some additional questions will enable to elicitate more ideas. It will constitute an «Help» part of the website along with an example (using the ArtiCadeau case of study). We begin with the questions about the *primary value chain activities* of the project and we propose next the questions about the *support value chain activities*.

5.6.2 Questionnaire about opportunities and threats behind the 5 Forces Model

The 5 forces model was firstly proposed in the Light AS IS and TO BE analysis through an instantiation of all concepts in a tabular. In this part, we go further and ask the user to identify the opportunities and threats for each force. It can help him to complete his model and give the user the points to think about in order to meet perfectly a new opportunity or to decrease a threat. The user can fill in all opportunities and threats in the tabular below.

	Opportunities	Threats
New entrants		
Bargaining power of buyers		
Substitute products or services		
Bargaining power of suppliers		
Rivalry among competitors		
Relation with the government		

Table 5.17: Opportunities and Threats in the 5 Forces Model

5.7 Conclusion

At the end of this part about the practical roadmap, we can say that the methodology covers a lot of the current organization aspects and in the next version of the organization thanks to the AS IS and the TO BE analysis.

We analyzed in the Light analysis the actors inside and outside the organization, the different business units and the resources they used through a modified Value Chain, the different forces which can influence the organization and open new markets, the main strategical goals in the mission statement of the organization, and finally, in the AS IS situation, a summary of all important elements in the SWOT analysis.

In the Full analysis, we went deeper into the details and analyzed successively the relationships, on one hand, about the target customers and on the other hand, about the partners like suppliers, allies, banks, government, ... Further, we developed two methods to elicitate one or several Atomic Business Models which are the most appropriate for the kind of organization. For these models, we proposed key success factors and goal models in order to provide an interesting background that the executive can adapt to his situation. We also analyze precisely the value propositions and the links with the customers. Finally, we provide the data necessary for the analysis of the economical flows of the organization with the e³value tool which is specifically dedicated for it.

Between the AS IS and the TO BE analysis, we precised the goals and reasons which justify the changes of the organization from one business model to another in the transitional goals.

In the next part, we explain the web-supported tool that we developed to implement the methodology explained in this part.

Part III

Presentation of the tool

Chapter 6

Presentation of the website

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6.1 Introduction

We will present in this chapter the tool that we developed to sustain the practical roadmap. The goal of this website is to propose a practical way to create a business model for new or existing organizations. The tool will use all elements defined in the *proposal of a methodology for business model creation* part. The tool is a website and is available at the following address : <http://www.business-models.info>. We used web technologies because it is easy to access to the information for everyone which has an Internet access. It also enables the user to access to his business model everywhere thanks to an account.

When the tool will enable to elicitate some general information about the organization (actors, process, ...), it will record it in a database in order to use it later. The concept of actor, for example, will be used firstly in the Light AS IS analysis and it will be useful for the next steps of the roadmap. The tool will also enable the user to improve its analysis (add some actors, modify the description of them, ...).

An important part of the tool that we developed is to provide some help. Hence, at each step of the roadmap, the user will get some advices, theoretical recalling, ... This is the main goal of the previous (and theoretical) part of this thesis.

6.2 Presentation

6.2.1 Technical aspects

We will present in this section the technical aspects of our website. It is mainly based on Open Source solutions.

The website is written using the PHP language (acronym of *Hypertext Preprocessor*) and HTML (acronym of *Hypertext Markup Language*) with a MySQL database. All these technologies are well-known to create dynamic websites. We call *dynamic* websites, the websites which include automatic generation of webpages from data stored in a database. We use this possibility nearly for all pages of our website. We chose these technologies because they are Open Source and so available for everyone. They are also used by a lot of websites in the world and should be quite reliable. Another advantage was that we had already used these technologies in other large websites (e-commerce or free online bets for example).

The website is mainly based on forms that the user can fill in. The executive fill in the different elements of the form and push on the button *Save* to store the data in the database. The data can be shown later and are associated to the current roadmap of the user who can change or continue it later.

We propose links between the different steps of the website. For example, when we analyze the partnerships of the organization, we propose directly the actors inserted in the first step (Actors classification tree) of the Light AS IS or Light TO BE analysis. These automations are useful and help the user to go further in the analysis. Nevertheless, if the user click on a step which needs data from a previous one, the automations are impossible. That's why we analyzed the preconditions of all steps and we put a short message on the screen if the preconditions are not right : *Before doing this step, we advise you to firstly fill in the previous step «Name of the previous step» You will then be able to add some elements on this page.* It is easy to understand and allows a good process on the website.

Before to create the website, we specified it in a document available in the appendix of this thesis. We defined the Use Cases about the Account management, the Light AS IS analysis (for existing or new organizations), the Full AS IS analysis, the Transitional goals, the Light TO BE analysis and finally the Full TO BE analysis. After that, we specified the main activities identified in the Use Cases in order to implement them in an as good as possible way in the website.

We also defined the database through a conceptual model (ERA). We defined a first version and after some changes and optimizations we can propose below the database scheme. The scheme was done thanks to the data-oriented CASE (Computer-Aided Software Engineering) environment DB-MAIN¹.

¹This tool is available on this website : <http://www.info.fundp.ac.be/libd/>

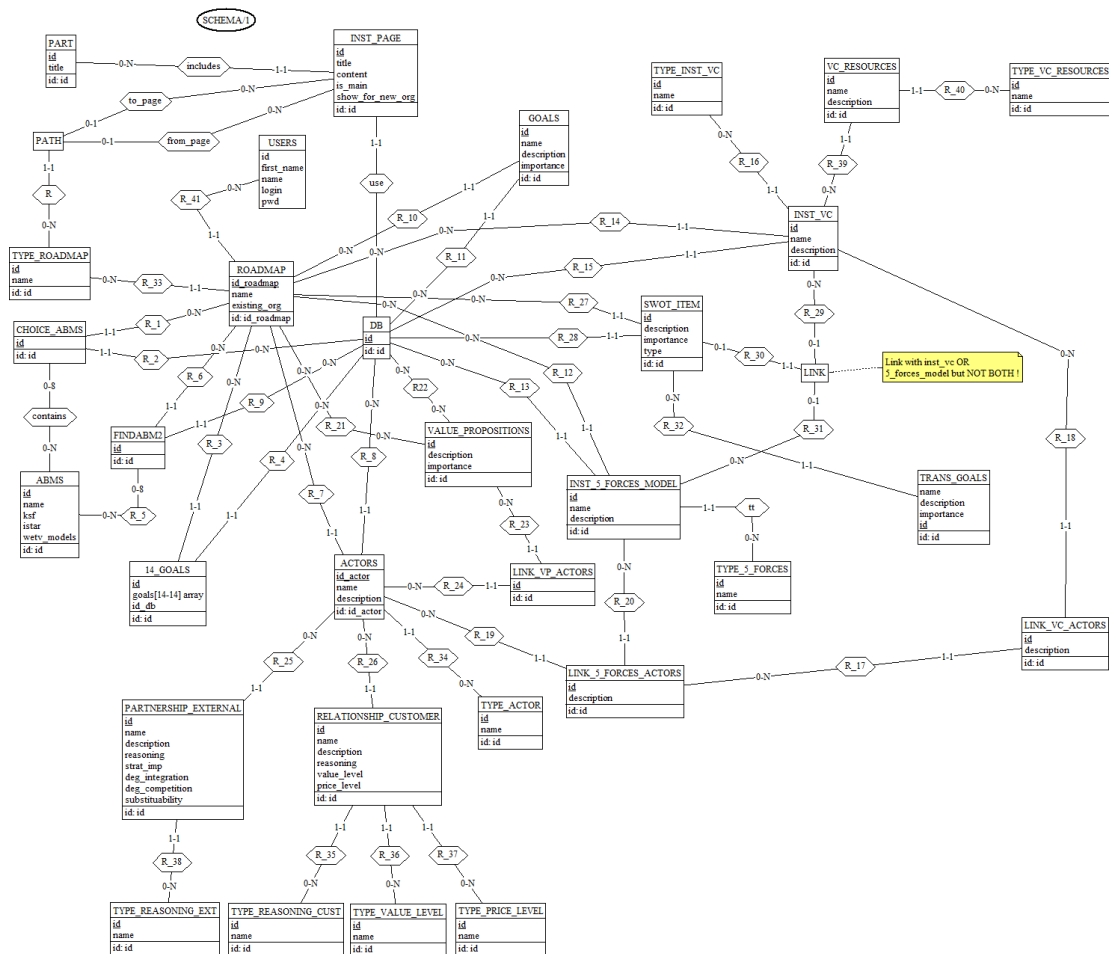


Figure 6.1: Conceptual model for the database of the tool

The main element of the ERA model is the entity ROADMAP which represents the core concept of any study about an organization. In order to propose an AS IS and a TO BE versions of these studies, we decided to propose another entity DB which is actually a way to simulate two different databases (one for the AS IS information and an other for the TO BE information of the same roadmap, and so the same organization). The entity TYPE_ROADMAP enables the user to use different «advised paths» in order, for example, to only fill in the most important information about the organization. Although it is possible to create a lot of different types of roadmaps, in our tool, we decided to only propose two different types of roadmap : a full analysis and a classical analysis which only pass through the Light AS IS, Light TO BE and then Full TO BE parts.

PATH and INST_PAGE enable the system to generate an «advised path» through the different steps of the roadmap. Although a traditional way to fill in the roadmap is advised, the user can also choose to fill in the different steps as he would like. Each element of INST_PAGE is included in a PART to separate the Light and Full analysis. The USERS entity store all the information about the registered users of the system (each user has to register to use the system and analyze an organization).

The other entities are able to store all the information about the organization that the user would like to analyze (goals, actors, value propositions, SWOT, links between these elements, ...). A few entities are used to store the different types of elements like the type of price or

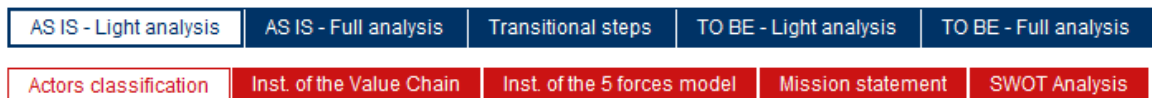
value level, the type of the elements of the value chain, ...

6.2.2 Graphical aspects and organization of the website

The graphical user interface (GUI) of our website is easy to use and understand. We did all what was possible to improve the graphical aspects of the website but we are not designers. We preferred to focus on a website/tool which works effectively than a visual attractive one with problems. Nevertheless, we can say that an average user can understand the way to work with our tool in less than five minutes.

We can now explain how the website is organized. After the home page which explains the goals of the roadmap, the user can create an account with the definition of a login and a password. After that, the user is logged in and he arrives on the page where he can manage his account. There, he can change his password, create a roadmap (for a new or existing organization) or create a roadmap from an existing one (the TO BE will become the AS IS of the new one). When a user created a roadmap, he can *Start it* and reaches a page which has the same outline for each activity of the tool.

At the top of the page, the user can find the menu with on the first line the name of all analysis (from Light AS IS to Full TO BE) and the colors are inverted on the current analysis (here : Light AS IS). On the second line, he can find the activities composing the current analysis with in the case of the Light AS IS analysis, the actors classification, the instantiation of the Value Chain and the 5 Forces Model, the Mission statement and finally the SWOT analysis. As in the first line, the current analysis has his colors inverted (here : Actors classification). It helps to know where we are in the analysis.



AS IS - Light analysis	AS IS - Full analysis	Transitional steps	TO BE - Light analysis	TO BE - Full analysis
Actors classification	Inst. of the Value Chain	Inst. of the 5 forces model	Mission statement	SWOT Analysis

Figure 6.2: Menu for the pages of the website

After the menu, the user can find two links to go to the previous and the next activity of the analysis. Lower, he can find the name of the current activity and an introduction of it. After that, it is the activity where the user can fill in information on his organization. Below the activity, the user can find the help section of the current activity. It will explain him how to fill in correctly the activity and remind essential aspects. For a deep analysis, he can go to the thesis which is available in pdf or html at the lower part of the webpages. The user has also the links to the homepage, the account management and to log out at the bottom part of the page.

On each page, there is a link to create a PDF (Portable Document Standard) of the AS IS or of the TO BE analysis (Light and Full). The PDF format enables to read the data in an easier way and so analyze it deeper if the executive prefers a paper version.

6.3 Further improvements and limitations

In our opinion, the website gives a good overview for the creation of a business model by an executive. It gives him an interesting help to produce the business model of his organization.

Nevertheless, it would be possible to improve the website in further research and developments. Here are a few ideas to improve it :

- Improvement of the Graphic User Interfaces (GUI) with the help of a professional designer
- More automations between the activities thanks to a knowledge database
- Creation of links with external applications (import and export functions)
- Storage of all data introduced by the user without to have to push on the button *Save*
- Manage e3Value in the website

We can also add to cover some operational aspects (thanks to BPMN) which is the logical continuation after the creation of the business model. It could also be interesting to add elements to help more practically the executive with links to websites or organizations which are specialists of a part of the business model.

We deeply tested the tool and we think that this version should be quite reliable. However, at the moment, it is impossible to be sure of that. That's why we think that improvements (or resolution of problems) could also come from the users. It is very important to have a feedback and change the website in consequence. The users could be the source of perpetual improvements on the website to be always in accordance with last developments in business models.

6.4 Conclusion

With our tool, we think that the creation of a business model for an existing or a new organization is easier. We provide an interesting way to go from actors to economical flows of a business model thanks to different activities for the current and the future situation of the organization. We make the links between different aspects of a business model and its interesting for executives who could forget elements. The concept of business model is not really well-defined and our tool can express it more easily for people who use it concretely for the first time. The tool is also useful for new organizations before the definition of a business plan because it helps to structure the mind of the creators and to define precisely how the new entity will be sustainable thanks to the links with target customers and with partners, ... ?

The website <http://www.business-models.info> was a large project to think, model and create. We think that this is a good first version and that it covers main aspects of a business model through an effective way. The help on each page should be enough to understand and fill in rightly a complete roadmap for an organization.

We based our website on open-source technologies like PHP, HTML or MySQL. They are performant and help can be found easily on the Internet. The choice of these technologies was natural because we use them often in the creation and maintenance of several websites (mainly ArtiCadeau.com, see the case study for more information).

We tested the tool on a case study and the results of it are presented in the next part.

Part IV

Case study

Chapter 7

Case study : ArtiCadeau

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7.1 Introduction

In the last part, we presented the website based on the roadmap defined in the previous parts of this thesis. In this chapter, we can now use it on an example to test it. We will apply it on the e-commerce company ArtiCadeau. The aim of this part is to show the utility and the usability of our practical roadmap.

ArtiCadeau SPRL is a small Belgian company created by Simon-Pierre Breuls and the two authors of this thesis in July 2007. ArtiCadeau aims at selling and promoting quality craft products from Belgium on the Internet. We sell the products only via Internet through the website <http://www.articadeau.com>. To give a short overview of our company, we give below the key facts :

- Website launched 19th Augustus 2007 in French and later in English
- 14 craftsmen and more than 100 products
- First one in the Belgian market
- 30.000 visitors in less than ten months (Currently around 1000 each week).
- Around 2.000 € of turnover

7.2 The case : ArtiCadeau

To test the utility of the roadmap, we applied the tool on ArtiCadeau. We decided to analyze it deeply and so used the full analysis. We firstly analyzed the AS IS of the organization. It enabled us to analyze some aspects of the organization that we did not think about usually since they seemed obvious. Despite this fact, it was interesting to recall all these elements. Among other things, we know that we have a lot of visitors but do not success to transform all these visitors to enough orders. The Key Success Factors were also very interesting. Even if we analyzed them for each model, we focused our analysis on the company and discovered

that some interesting ideas could indeed be applied to our way of doing things.

From this analysis, we then analyzed the *Transitional goals* of the company and, for each element of the Strengths, Weaknesses, Opportunities and Threats, tried to find a way to improve how the business works and could improve itself in the future. This analysis could seem obvious but we have to say that, even if we often try to think about improvement for our organization, we did not think usually in such a systematic way which helped us to find interesting ideas. The help part was also interesting to elicitate what we know but do not write about the organization. For example, we identified two main things to change for the future of the organization :

- We have to differentiate a lot from the competitors, especially the suppliers from China or Taiwan and to insist on our main competitive advantages (quality, from Belgium, craft industry).
- To separate the traditional products with the quality product which are more expensive

From now, we will keep in mind these different objectives for the future. A second version of the website is already foreseen for this summer with a clear distinction between products for ordinary occasions and luxury products. We will also insist on our competitive advantages. We finished the analysis copying the AS IS in the TO BE version and modified this part treating about the future of the company using ideas discovered with the transitional goals. This second version is very interesting to analyze thanks to the roadmap because it helped us to understand deeper what should be changed in the current version of our organization.

The results of the analysis can be found in the appendix of this thesis. We used the function of PDF generation available in the tool to produce the report.

In conclusion, the tool helped us to think in a systematic way about elements of the organization what we are not used to do. This is however very interesting particularly to analyze actors, offers for the different target customers, activities and also to find solutions for each Weakness or Threat and improvements for each Opportunity and Threat.

Chapter 8

Conclusion

Business models are designed as a tool to clarify how organizations work, to discuss and to share this information. These business models can really enhance how organizations work if they are practical and affordable enough for the end-user.

We analyzed the state of the art and used the interesting concepts which are the most successful and could be integrated into a practical way of doing things. We firstly analyzed what could be merged from the various points of view of the different authors and then decided to analyze one precise method for each field of the analysis of a business model. The creation of the tool was preceded by the methodology of the roadmap and the specifications. It aimed to be sure that we knew exactly what we would realize before to implement the roadmap.

The practical roadmap that we explained in this thesis and the website associated are interesting for people who want to develop a business model without deep knowledge in the field. We think nevertheless that it is a first draft as complete as possible which can be improved.

Lastly, we tested our practical roadmap with the case study of our company, ArtiCadeau, and we can say that this tool helped us to pay attention to some aspects that we did not spot at first. It could be useful to propose feedback to the users to adapt the tool in function of their comments.

The business model field is very active and a lot of articles, papers or thesis are published every year. Improvements are done in each field of business models and also in interactions with other domains with which business models are linked : business organization, economy, management, technologies, ... The roadmap could be adapted and include the improvements in business models subject. We developed interactions between the strategical and business level but it should also be possible to develop and introduce elements of the process level in the roadmap.

The website <http://www.business-models.info> could also be improved with new technologies (like Ajax or Flex) so that it should be more like a software. We could change the graphic user interface with the help of a web-designer. The website works alone but it could be interesting to create functions to import or export each roadmap in order to use it with other tools. The introduction of a knowledge database could be interesting to propose more information or increase the automation between the different activities of the roadmap.

The goal of this thesis was to develop a practical roadmap for the final user of an organization. We believe that the goal was reached even if it could be possible to improve the system in further works. Nevertheless, we think that it will help some executives or could serve as a

base for a future thesis.

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Part V

Appendix

Appendix A

Specifications of the website

In this appendix, we will describe precisely the specifications of the website which illustrates our roadmap. We include the following points in this document :

- *Account management* with the profile of the user and the login part
- *Light AS IS analysis* with the internal and external aspects
- *Transitional goals* only for existing organizations
- *Light TO BE analysis*
- *Full TO BE analysis*

The Light AS IS analysis has two versions for the existing and the new organizations. The Light AS IS analysis includes internal and external aspects in case of existing organization and only external aspects in case of a new organization.

The Transitional goals are only available for existing organization because, in new organization, there is no transition from one business model to another.

We will not entirely describe the Full AS IS analysis because we would show nearly the same information as in the Full TO BE analysis when it has been implemented in the organization. In fact, the activities of the Full AS IS include all activities of the Full TO BE and we add only two activities to analyze deeply the SWOT analysis.

We can see the different steps of the roadmap in the following figure :

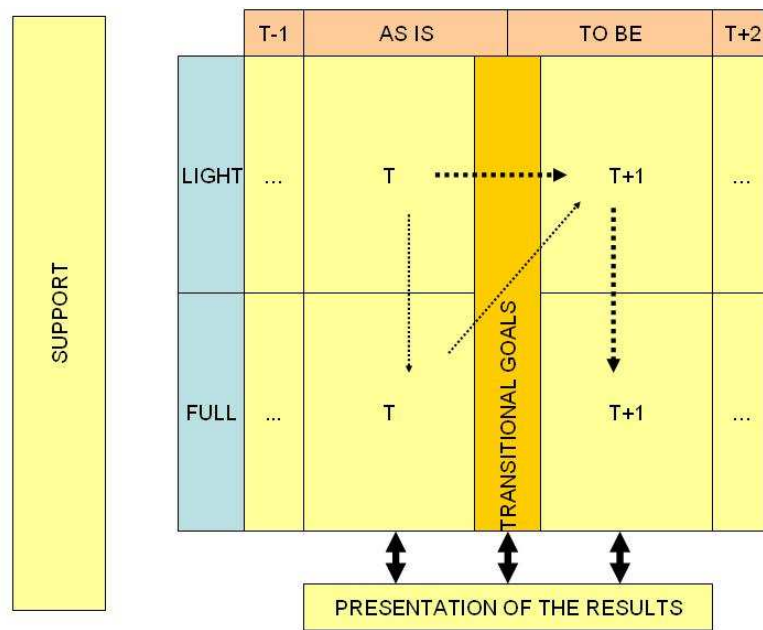


Figure A.1: Global view of the roadmap

Below, we can find the same figure within a Use Case (UML notation). The Figure A.2 explains that the each step of the roadmap requires to be identified before to fill in it.

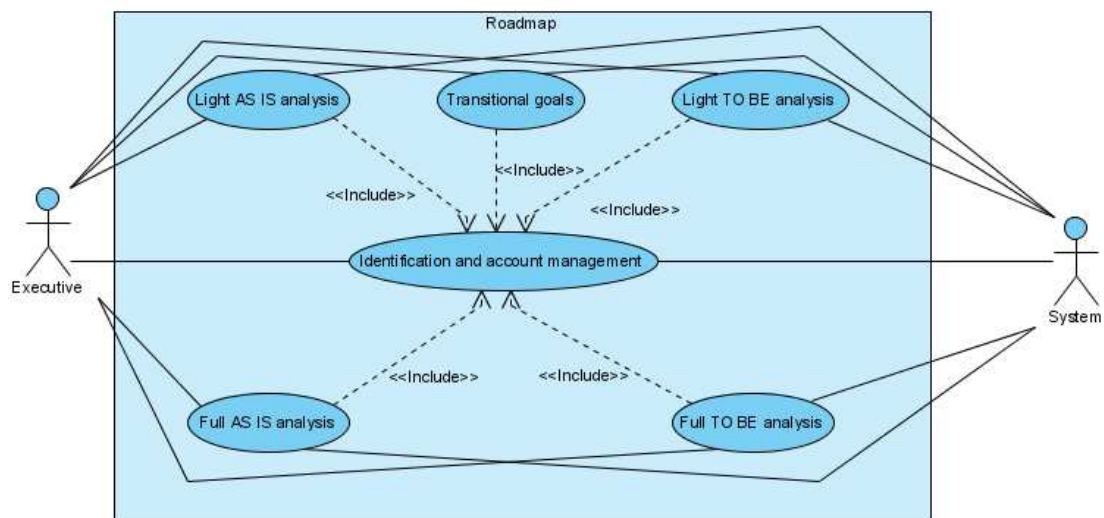


Figure A.2: Global Use Case of the roadmap

Here are the main steps that the user will have to practice (and the common scenario associated to each one):

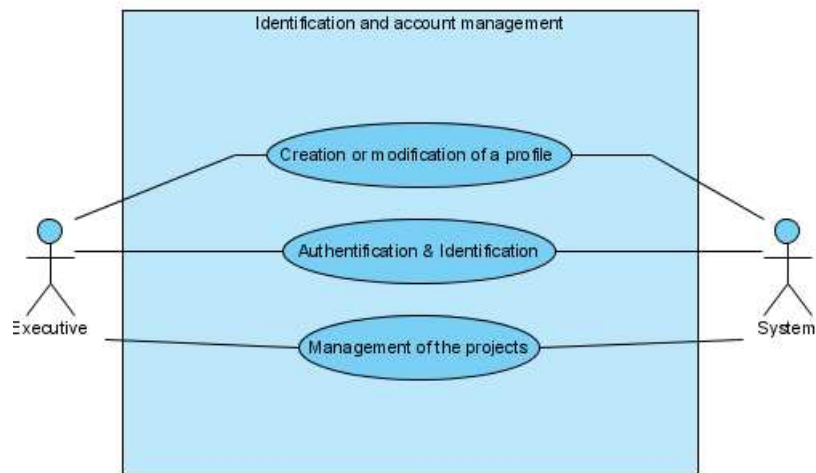


Figure A.3: Support activities of the tool (account management)

UC 1 : Creation of a profile	
Executive	System
1. The executive goes on the website (http://www.business-models.info). 2. The user arrives on the homepage of the website and can create an account (by clicking on the link at the bottom of the page). 4. The user fills in all needed information (login, password, name, firstname, email, ...)	3. The system shows on the screen the different boxes to fill in in order to create an account. If the user has already an account, he can sign in and continue his projects. 5. The system saves the information and creates the account. He informs the user of this success.

Table A.1: UC 1 : Account management - Creation of a profile

UC 2 : Authentication and identification	
Executive	System
1. The executive goes on the website (http://www.business-models.info). 2. The user arrives on the homepage of the website and inserts his login and password.	3. The system redirects the user to his project management homepage if authentication succeeded.

Table A.2: UC 2 : Account management - Authentication and identification

UC 3 : Management of the project	
Executive	System
<ol style="list-style-type: none"> 1. Authentication (UC 2). 2. The user clicks on the link <i>Manage account</i> below on the webpage. 4. The user changes a project or creates a new one and starts it. 	<ol style="list-style-type: none"> 3. The system shows on the screen the current projects of the user so that he can modify it or continue it.

Table A.3: UC 3 : Account management - Management of the project

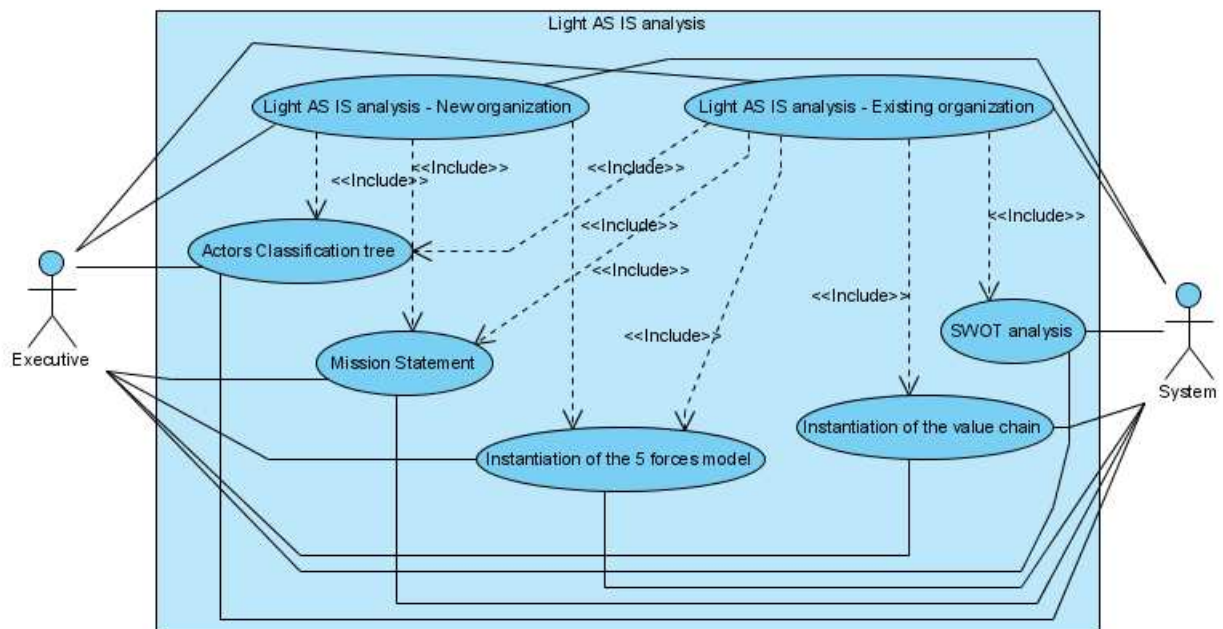


Figure A.4: Light model for the AS IS version of an organization

UC 4 : Light AS IS analysis - New organization	
Executive	System
<ol style="list-style-type: none"> 1. Authentication (UC 2) if not yet done. 2. Introduction of all actors in the different forms and in the appropriate categories. 4. Instantiation of the 5 forces including links with the results of point 2 of this UC. 6. Development of the mission statement. 	<ol style="list-style-type: none"> 3. Storage of all data. 5. Storage of all data for each force. 7. Storage of the mission statement.

Table A.4: UC 4 : Light AS IS analysis - New organization

UC 5 : Light AS IS analysis - Existing organization	
Executive	System
1. Authentication (UC 2) if not yet done. 2. Introduce all actors in the different forms and in the appropriate categories. 4. Instantiation of the Value Chain including links with the results of point 2 of this UC. 6. Instantiation of the 5 forces including links with the results of point 2 of this UC. 8. Identification of the mission statement of the current organization. 10. SWOT analysis of the organization with a level of importance for each element.	3. Storage of all data. 5. Storage of all data for each activity of the Value Chain and the actors associated with it. 7. Storage of all data for each force. 9. Storage of the mission statement. 11. Storage of the SWOT analysis.

Table A.5: UC 5 : Light AS IS analysis - Existing organization



Figure A.5: Transitional goals of an organization

UC 6 : Transitional goals for an existing organization	
Executive	System
1. Authentication (UC 2) if not yet done. 2. Definition of transitional goals in function of weaknesses and opportunities defined in the Light AS IS analysis.	3. Storage of all transitional goals.

Table A.6: UC 6 : Transitional goals

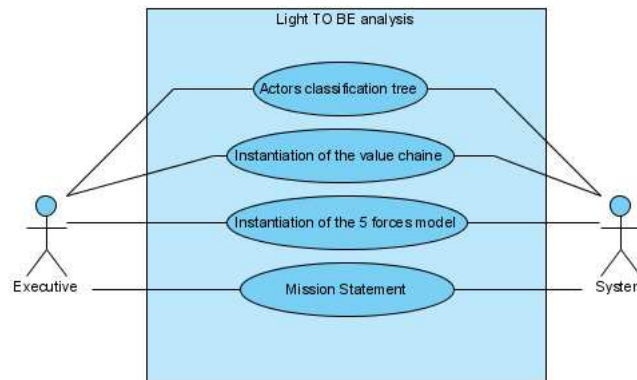


Figure A.6: Light model for the TO BE version of an organization

UC 7 : Light TO BE analysis	
Executive	System
1. Exactly the same as the UC 5 (Light AS IS analysis - Existing organization) with a base of AS IS data so that the executive will have just to change the delta between the two models (except that we remove the SWOT analysis).	2. Storage of all information.

Table A.7: UC 7 : Light TO BE analysis

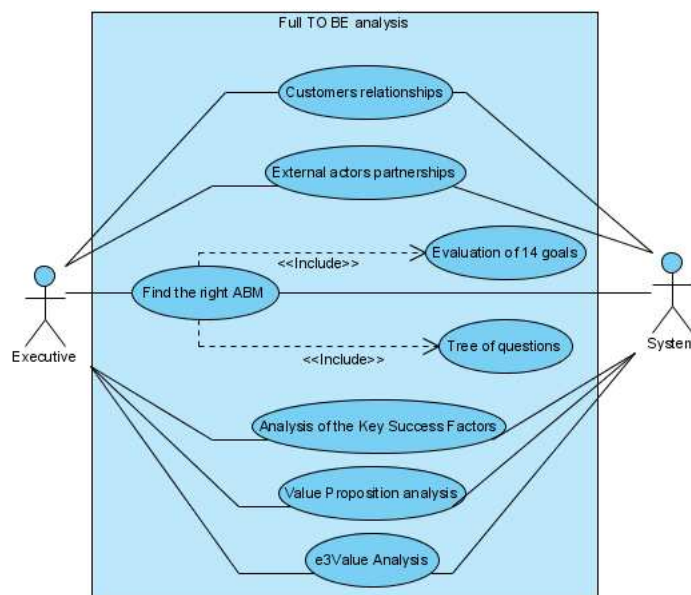


Figure A.7: Full model for the TO BE version of an organization

UC 8 : Full TO BE analysis	
Executive	System
<p>1. Authentication (UC 2) if not yet done.</p> <p>2. Analysis of all customer relationships and the offers based on the Actors classification tree defined in the UC 7.</p> <p>4. Analysis of all external actors partnerships based on the Actors classification tree defined in the UC 7.</p> <p>6. The user evaluates 14 common goals to define one or two Atomic Business Models corresponding to his business.</p> <p>8. The user answers to questions in order to define one or two ABMs adapted to his business.</p> <p>10. The user accepts or not the ABM(s) proposed by the system and can choose his own ABM or a combination of ABM which is the best for his case.</p> <p>12. The user analyzes the KSF and the i*/GRL and W&V models in order to improve his Value Propositions. The Value Propositions will be based on all Customer relationships defined in step 2.</p> <p>15. The user does his economical analysis thanks to the e3Value tool.</p>	<p>3. Storage of these offers.</p> <p>5. Storage of all partnerships.</p> <p>7. The system analyzes the criterions and produce one or two ABMs.</p> <p>9. The system analyzes the answers of steps 6 and 8 to define the right ABM(s). We can have one or several ABM corresponding to the organization because some answers can be close and the user will have the last word.</p> <p>11. The system shows the Key Success Factors associated to each ABM. He gives also the i*/GRL and W & V models of the ABM(s).</p> <p>13. Storage of all Value propositions.</p> <p>14. The System gives all elements (Value propositions, actors, partnerships, ...) for the e3Value analysis that the user will perform.</p>

Table A.8: UC 8 : Full TO BE analysis

We will present below the Use Case of the Full AS IS analysis which is very close to the Full TO BE analysis. In fact, we only add two elements about strengths, weaknesses, opportunities and threats of the organization.

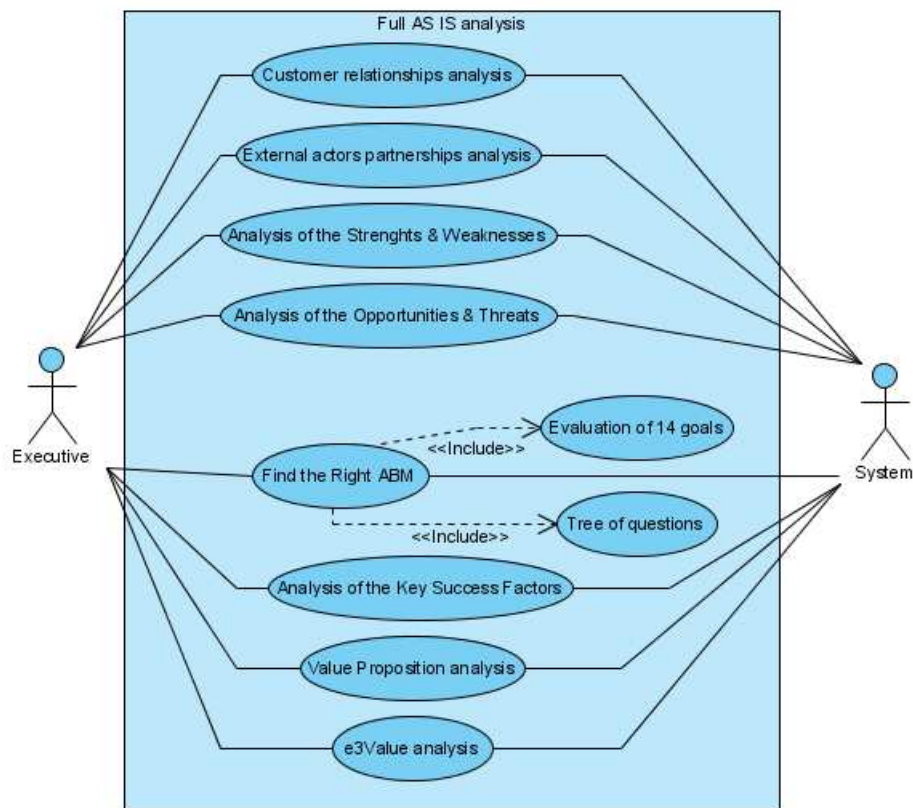


Figure A.8: Full model for the AS IS version of an organization

UC 9 : Full AS IS analysis	
Executive	System
1. Steps 1 to 5 of the UC 8. 2. Analyze of the strengths and weaknesses of the organization through the Value Chain defined in the UC 7. 4. Analyze of the opportunities and threats of the organization through the 5 Forces Model defined in the UC 7. 6. Steps 6 to 15 of the UC 8.	3. Storage of all strengths and weaknesses. 5. Storage of all opportunities and threats.

Table A.9: UC 9 : Full AS IS analysis

We can also present the information in the following form :

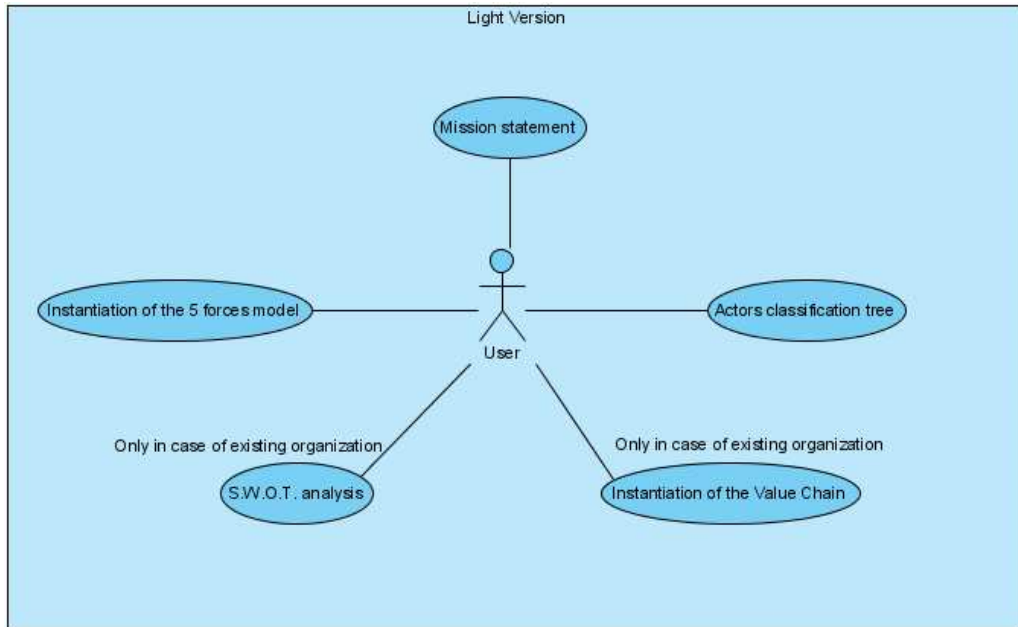


Figure A.9: Light version of the roadmap

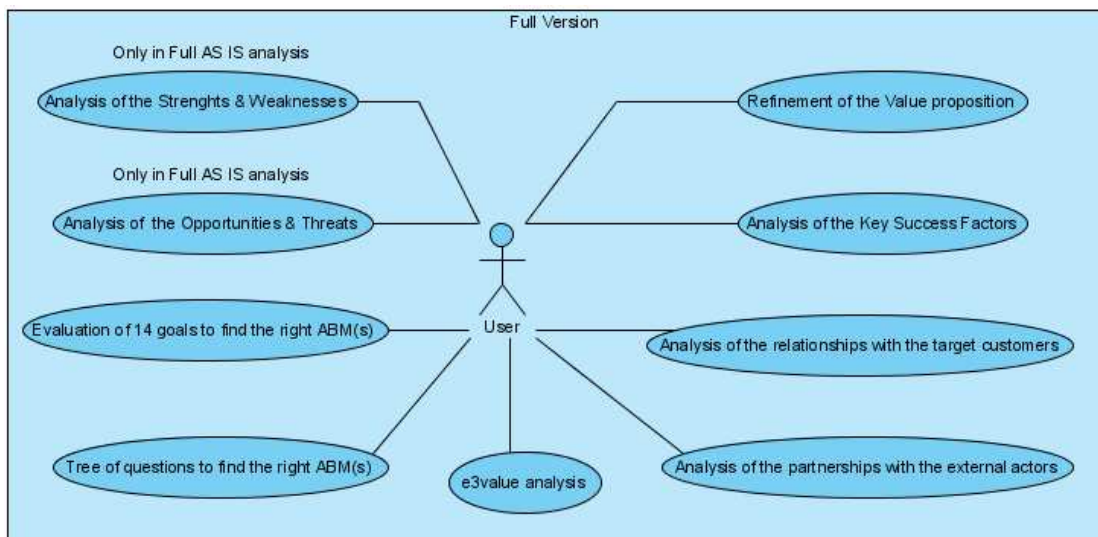


Figure A.10: Full version of the roadmap

In all next parts, we describe the functions with the following pattern :

1. **Main ideas** : Gives a short description of the function.
2. **Actions of the user** : Explains the different actions that the user will have to do in order to fulfil the section.

3. **Input** : Gives back the previous information given by the user that will be useful for this function. We consider that these information are coming from the previous activities of the roadmap. We do not consider the case of a previous session of the user who could have filled in a part of the current activity for example.
4. **Output** : Shows the results of the function.
5. **Help Section** : Explains the help part associated to the function.

Account management

In this section, we present briefly the information to collect in order to create a profile for each user of our roadmap. We explain also the way to manage the state of the project (Light vs. Full, AS IS vs. TO BE).

When the user will arrive on our website, we will explain our roadmap and all the features included. We will also explain the context behind the creation of the website.

Creation or modification of a profile

1. **Main ideas** : This function is used at the beginning of the roadmap to create an account on the website with a specific profile. The profile can be changed at every moment.
2. **Actions of the user** : Introduction of all his data for his profile with a login and a password.
3. **Input** : The data of the profile if it exists.
4. **Output** : The creation or the modification of the user's profile.
5. **Help Section** : Explanation of the reasons to create an account (example : to save the data between the connections to the website).

Authentication and identification

1. **Main ideas** : The goal of this function is easy to understand. It is just to enter or exit of the website.
2. **Actions of the user** : Introduction of his login and his password to log in and push on a button to log out.
3. **Input** : The data of all profiles.
4. **Output** : Introduction in the roadmap for a session or closing of this session.
5. **Help Section** : /.

Management of the different projects

1. **Main ideas** : The user can create a new project in this section and change the state of it. He can say if his organization exists or not. He can also say that the TO BE is now the AS IS and so he has the possibility to adapt his business model again.
2. **Actions of the user** : Creation of a project, type of it (exist or not), changing of the state of the project.

3. **Input** : All data about the projects of the user and their history.
4. **Output** : The creation or the modification of a project.
5. **Help Section** : Short explanations about how to manage a project in our roadmap and the ways to evolve it.

Light AS IS analysis

In the Light AS IS analysis, we help the executive to produce a first report on his organization and his environment. If the executive has only a project, we study only the environment into an external analysis. In this case, we remove the points 2 and 5.

Actors classification tree

1. **Main ideas** : Analyze all stakeholders of the organization and classify them.
2. **Actions of the user** : Identify, classify and comment all actors around the company.
3. **Input** : /
4. **Output** : A categorisation of stakeholders : internal actors, external actors, customers with some specifications on the customers and the external actors.
5. **Help Section** : Explanation of each category and the goal of this classification tree.

Instantiation of the Value Chain

1. **Main ideas** : The user instantiates the different elements of the Value Chain in the case of his company. It will help him to have a good view of his organization and the infrastructure needed to sustain it.
2. **Actions of the user** : Analyze each part of the Value Chain and fill it if it is necessary.
3. **Input** : The classification of the actors and their roles.
4. **Output** : The Value Chain of the organization with a description of main processes.
5. **Help Section** : Theoretical recall of the Value Chain concepts and their utility.

Instantiation of the 5 Forces Model

1. **Main ideas** : The user will instantiate all concepts of the 5 Forces Model to analyze more deeply the environment of his organization. We add the 6th force (Government) to be complete.
2. **Actions of the user** : Analyze each force and fill it as much as possible.
3. **Input** : The classification of actors will give a first draft but details must be added.
4. **Output** : The 6 forces (5 forces + the government) that will help to catch the opportunities and threats.
5. **Help Section** : Theoretical recall of the 5 Forces Model and its utility.

Mission statement

1. **Main ideas** : In this section, the user will develop his mission statement if it is not yet done in his organization.
2. **Actions of the user** : Define his mission statement and write it in a tabular.
3. **Input** : All data already introduced in the previous activities of the Light AS IS.
4. **Output** : Mission statement of the organization.
5. **Help Section** : Explanations about the Mission statement concept.

SWOT analysis

1. **Main ideas** : After an introduction of main aspects of a business model in the case of his organization, the executive is now ready to develop and express the Strengths, Weaknesses, Opportunities and Threats of his organization.
2. **Actions of the user** : Introduction of all Strengths, Weaknesses, Opportunities and Threats and a level of importance for each one.
3. **Input** : All data already introduced in the previous activities of the Light AS IS.
4. **Output** : Complete SWOT analysis of the organization.
5. **Help Section** : Explanations and advices about the SWOT analysis.

Transitional goals

Definition of the transitional goals

1. **Main ideas** : The user will think about his reasons and goals to go from one business model to another. This goals are strategic and are an important part of the new strategy in the organization that lead to change it.
2. **Actions of the user** : Define his strategy and the tactic behind it that could be summarized in this section.
3. **Input** : The light AS IS analysis gives a first overview of the existing environment (and the organization if it exists) and it is useful for the evaluation of the existing strategy and the points that could be improved in the organization.
4. **Output** : A summary of all goals that justify the change of the business model.
5. **Help Section** : A short definition of the transitional goal concept and its utility.

Light TO BE analysis

In the Light TO BE analysis, we will use the same steps defined in the Light AS IS analysis (except that we remove the SWOT analysis which is hard to define for a non existing organization). We will use the data given by the user in the Light AS IS analysis to simplify and accelerate the creation of this analysis. The user will have to do the *delta* between the AS IS and the TO BE. Some elements are the same in both models and that's why we think that it can be interesting to propose the copy of the information from the Light AS IS to the Light TO BE in order to accelerate the Light TO BE. The user will have the choice to copy or not the information thanks to an option after the Transitional goals.

Full TO BE analysis

Target customers relationships analysis

1. **Main ideas** : The goal of this step is to analyze, for each kind of customer (private, organizations, premium, ...), the offer that the organization proposes to them. To reach this goal, we will use as basis, the eBMO offer concept.
2. **Actions of the user** : The user will have to fill in the different information (Name, Description, Reasoning, Value level and Price level) with the help of the *Help section* presented below.
3. **Input** : The classification of the different target customers (from the actors classification tree)
4. **Output** : More information about the offers with each target customer.
5. **Help Section** : This section will contain the description for each information asked to the user.

External actors partnerships analysis

1. **Main ideas** : Like the previous one, this analysis has to get more information about an actor linked with the organization (this time the external actors). By *external actors*, we mean the suppliers but also the allies or the actors of the environment.
2. **Actions of the user** : To fill in all the information asked about the external actors identified before (Name, Description, Reasoning, Strategic importance, Degree of integration, Degree of competition, Substituability).
3. **Input** : The classification of the different external actors (from the actors classification tree)
4. **Output** : More information about the partnerships with each external actor.
5. **Help Section** : This section will contain the description of each information asked to the user.

Evaluation of 14 goals & matching with a kind of ABM of W&V

1. **Main ideas** : When the user will answer to these 14 goals, the tool will analyze the answers to identify one (or a few) ABM(s) which could match to these answers.
2. **Actions of the user** : Fill in the evaluation of the goals by the user in the case of his own organization. He also will be able to select which results of the tool will be taken into account in the case of the user.
3. **Input** : The evaluation of the 14 goals by the user and the rules defined in the tool.
4. **Output** : ABM(s) from Weill & Vitale.
5. **Help Section** : Information about the different ABMs.

Tree of questions to find the right ABM

1. **Main ideas** : This is another way to find the ABM's which are interesting to identify for the user.
2. **Actions of the user** : The user will have to answer to the question and to select (or to disapprove) the proposition made by the tool.
3. **Input** : Rules defined by the tool and possibly the answers to the previous step in order to compare the results of this step with the answers to the previous.
4. **Output** : One (or a few) ABM(s) identified along with the schema from Weill & Vitale and the Key Success Factors for the kind of organization which follows the same ABM(s).
5. **Help Section** : Information about the different ABMs.

Value proposition refinement

1. **Main ideas** : The user will have to assign, for each target customer, one or a few value proposition. We will also ask the user which are the capabilities behind each value proposition.
2. **Actions of the user** : With the help of the tool, identify the value propositions and the capabilities which are necessary.
3. **Input** : The target customers and the value chain, both identified before.
4. **Output** : A refinement of the value proposition.
5. **Help Section** : A description and a few examples of value propositions for a few kind of organizations.

Analysis of the key success factors

1. **Main ideas** : Generation and analysis of the key success factors using the classification of ABM previously done.
2. **Actions of the user** : He will check the different key success factors proposed and chose the ones (if any) which match with his organization.
3. **Input** : The key success factors generated through the W&V analysis.
4. **Output** : A few (if any) key success factors which match with the organization of the user.
5. **Help Section** : /

e3value for the financial analysis

1. **Main ideas** : We think that the e3value analysis is the best one to analyze the economical aspects of the organization and we will then let the user use this tool and the tool will provide him some information to help him in this task.
2. **Actions of the user** : To realize the e3value model.
3. **Input** : Information that could help the user to use the e3value method.
4. **Output** : The e3value schema will be the output of this step.
5. **Help Section** : Help about the e3value method.

Full AS IS analysis

The Full AS IS analysis is nearly the same as the Full TO BE. We add only two elements to analyze deeply all points of the Value Chain and the 5 forces model in order to see what could be improved in the organization.

Questionnaire about the strengths and the weaknesses of the processes

1. **Main ideas** : For each activity of the value chain identified before, analyze if it is a strength, a weakness or a neutral point for the organization.
2. **Actions of the user** : To fill in the tabular (presented before).
3. **Input** : The list of the different activities will be analyzed before this step.
4. **Output** : The questionnaire will be filled in and will be used to identify the main points that have to be improved (and so to generate goals from this analysis).
5. **Help Section** : /

Questionnaire about the opportunities and threats behind the 5 forces model

1. **Main ideas** : In the same way that we analyzed the strengths and weaknesses of the process before, we can now analyze the opportunities and threats of the different elements found through the 5 forces model.
2. **Actions of the user** : To fill in the tabular (presented before).
3. **Input** : The list of the different elements from the 5 forces model.
4. **Output** : The questionnaire will be filled in and will be used to identify the main points that have to be improved (and so to generate goals from this analysis).
5. **Help Section** : /

Appendix B

Case study of ArtiCadeau